This Week's News

HALF way 'round the world for news for one issue.

Perhaps it has never occurred to you, as you read each issue of NATIONAL PETROLEUM NEWS, to wonder how far its editorial staff travels, how much territory it covers to bring you just the news for one week in the oil industry.

For our March 20 issue, our own staff writers traveled over 13,000 miles—half the world's circumference—to get the articles that went into its news pages. This is in addition to work entailed on the part of special contributors.

News personally gathered by traveling is supplemented in each issue by the use of telegraph, long distance telephone and airplane mail.

News telegraphed to Cleveland to publish in the March 20 issue of NATIONAL PETROLEUM NEWS amounted to over 3000 words.

This energy and expense is shouldered most cheerfully by NATIONAL PETROLEUM NEWS to bring you each week the clearest and most accurate picture possible of what is going on in the oil industry.

NATIONAL PETROLEUM NEWS

Vol 21 No. 13

Published by
The National Petroleum Publishing Co.
1213 W. Third St., Cleveland, O.
Tell. CHerry 7672

Branch offices:
Tulsa, 904 World Bldg., Tel. 3-7132.
New York, 342 Madison Ave., Tel. Vanderbilt 3951.
Houston, 612 West Bldg., Tel. Fairfax 6286.
Chicago, 35 E. Wacker Drive, Tel. State 4141.

Subscription rate $3.50 per year, U. S., Mexico and Canada; $5 Foreign countries. Current copies 10 cents; for back issues more than two months old 25 cents per copy.

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Member Audit Bureau of Circulations and Associated Business Papers.

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Photo by Blank-Stoller Inc.

THAT a good share of the world's population knows what a gargoyle looks like is due to the efforts of Edward Prizer, chairman of the board of the Vacuum Oil Co.

His lubricating oils are marketed, and his red trademark displayed over more of the civilized —and uncivilized world—than that of any other oil company.

Mr. Prizer's foreign trade has taken him many times around the world, consequently, he is one of the best informed men in this country on world economic and racial problems.

His first connection with the oil industry started in 1882. He was busy boosting the circulation of a New York weekly in Rochester, when he came to the attention of Charles M. Everest, head of the Vacuum Oil Co., who was seeking a head for his new sales department. That was just the starting point for Mr. Prizer.

NATIONAL PETROLEUM NEWS

Higher Gas Taxes the Cry in the States, Chain Store Bills Are New Levies

CLEVELAND, March 25

THE state legislatures are using a double-barreled shotgun this open season for the oil industry.

One barrel is loaded with bills calling for an increase in the gasoline tax measure. One state now has a tax of 6 cents, about a third of the retail price of gasoline. Several states propose a 4-cent tax. Massachusetts and Illinois, the only states so far without gasoline taxes, will probably have them before this session of their state legislatures adjourns.

The other barrel has something new for most state legislatures to play with—a special tax on chain stores, including gasoline stations owned by oil companies, for the purpose of making it harder for them to do business in competition with the independent stores and stations.

Several states have passed chain store tax bills with graduated license fees so that the oil company owning the largest number of stations is taxed the most on each station. The courts have already passed on such chain store bills in three instances and found them unconstitutional.

Following is a summary of the present status of state tax measures along these two lines.

Six Cent Gasoline Tax in South Carolina

Staff Special

CLEVELAND, March 23

A 6-CENT state tax on gasoline. That is the latest and highest tax which has been imposed by any state. The tax was passed by the South Carolina legislature and approved by the governor. It became effective on March 18. South Carolina formerly had a tax of 5 cents in common with a number of other southern states.

In more than 20 states laws seeking to increase gasoline taxes are receiving attention or have passed.

Illinois, one of the last two survivors, will have a 3 cent gasoline tax beginning Aug. 1. The Illinois bill was signed by Governor Louis L. Emerson March 25.

New York now is the lone survivor and apparently will levy a tax this year. If this measure passes all 48 states will have gasoline taxes.

Some of the increases will go into effect very quickly, the legislatures having declared that emergencies exist by reason of which the safety of the various commonwealths will be promoted by early swelling of income. In four states the increases will go into effect April 1.

In Indiana the gasoline tax now is 3 cents per gallon. On April 1 it will be increased to 4 cents.

Kansas has increased the tax from 2 to 3 cents, effective April 1.

North Carolina has provided for a 1 cent increase from 4 to 5 cents, in line with the growing custom in the south of getting all the traffic will bear. This increase also becomes effective April 1.

Wyoming's increase will be from 3 to 4 cents, effective April 1.

On July 1 at least two states and possibly others, will have increases in the tax. The two definitely passed are North Dakota and Washington, both of which will raise the tax from 2 to 3 cents.

In Ohio the legislature is considering an increase of 1-cent in the state tax. This would bring the tax to 4 cents per gallon. Rural districts are favoring the bill and the cities opposing it.

In the Pennsylvania legislature there is talk of increasing the tax in that state from 3 to 4 cents. The bill has not been introduced but is expected to be about April 1.

Just before its adjournment the Vermont legislature passed a law advancing the tax in that state from 3 to 4 cents.

The Nebraska legislature is considering doubling the present 2 cent tax in that state. The bill has passed the lower house and now is before the senate. Oil men in Nebraska are of the opinion it will be passed and become effective 90 days after signature by the governor.

In Oregon the tax will be increased from 3 to 4 cents on Jan. 1, 1930. Washington already has advanced the tax from 2 to 3 cents, effective July 1 but two bills are still before the legislature proposing an additional advance to 4 cents. These latter bills are not expected to be approved.

In Minnesota and Wisconsin bills are under consideration proposing increases from 2 to 4 cents in the tax. It is thought in those states that a compromise on 3 cents may be adopted.

The proposed 2-cent tax in New York, to become effective May 1, bids fair to become a law in spite of a good deal of wrangling. Although Governor Roosevelt has indicated that he would veto the law unless the income tax is reduced, it is thought now that he will not take that action.

The Hewitt bill, the New York state gasoline tax bill, regarded as an official Republican measure, would give 5 per cent of the revenue to New York City and 20 per cent to the counties but none directly to upstate cities. It was this latter feature that provoked some dissension from representatives from Rochester and Buffalo. They pointed to the increasing cost of paving and handling of traffic in cities, declaring that the municipalities as well as rural districts should get some relief from the tax.

In Connecticut the legislature is considering bills designed to raise the tax from 2 cents to 3 or 4 cents.

One of the bills is expected to pass.

Although bills were before the Texas legislature proposing to raise the present tax of 2 cents to as high as 7¼ cents, none of the bills passed, at the session recently adjourned. A special session is in prospect, however, and that may be another story.

In Louisiana the state tax was increased to 4 cents last Jan. 4. This state permits parishes or counties to levy additional taxes of 1 cent if they so desire. Although the law is recent it is evident that the parishes do so desire. On March 1 there were special parish taxes of 1 cent in effect in West Feliciana, Washington, Avoyelles, St. Laundry, St. Martin, Lafayette, Tangiapahoa, Vermillion and Orleans.

Vermillion parish has a one-cent tax on kerosene, tractor oil and distillate in addition to the other sources of revenue.

Declare Chain Store Laws Unconstitutional

CLEVELAND, March 25

STATE legislation putting special taxes on chain stores—including oil company owned gasoline stations—has been declared unconstitutional in three court decisions the past year.

Many bills of this character are pending in various state legislatures now, but only a few have become laws. In many states these bills appeared this winter for the first time.

These taxes on stores or stations owned in numbers by the same interests are of two kinds. One is a straight license fee on more than one business unit owned by the same company. Sometimes the fee is the same for any number of stores and sometimes it is graded, being higher per store for the number owned.

The other form of tax is graded according to the volume of business done per store per year which is in some cases also graded according to the number of stores owned.

One of the three decisions knocking out these bills was handed down by the United States Supreme Court, one by the state supreme court in North Carolina and the third by a circuit court in Maryland.

That anti-chain store legislation in North Carolina violated the equal rights clause in the U. S. constitution was established by the state supreme court.

That Pennsylvania and Maryland laws over-stepped the bounds of state police power was established in the U. S. supreme court and the Maryland decisions.

The North Carolina bill levied a license tax of $50 on each store in chains above six. The Great Atlantic & Pacific Tea Co. and others won in the superior court and the decree was sustained in the state supreme court.

"The classification attempted for the purpose of imposing a license tax upon merchants falling within one class, and exempting merchants falling within the other class, is, we think, under the authorities, clearly arbitrary and if enforced would result in depriving merchants, who are within the first class, of the equal protection of the laws of this state," read the North Carolina decision of Oct. 10, 1928.

"It is immaterial that persons, firms, corporations or associations, liable under the terms of the statute for a license tax, are designated therein as owners of chain stores. Their business differs from the business of other merchants, not taxed by the statute, only in matters of detail and methods of buying and selling merchandise."

Fees paid under the North Carolina bill were recovered.

Use of police power by states in legislating against chain stores was not upheld by the United States supreme court in a decision on a Pennsylvania law. The Pennsylvania law, aimed only at drug stores, required total ownership in such stores to be held by registered pharmacists. The decision was handed down last November.

Police power can be used by states only in regard to "public health, morals or safety" under the federal constitution so the U. S. supreme court said, and there was no evidence presented to show that drug stores not owned entirely by registered pharmacists endangered the public health, morals and safety.

This point of regulation through exercise of police power was touched in the Maryland decision. The court said that unless the law clearly related to either "public order, security, health or morals," it cannot be justified as an exercise of the police power. The law was not justified as a police power.

The Maryland law made it illegal for chains to operate more than five stores and required a license of $500 for each unit operated. The Keystone Grocery & Tea Co. with the cooperation of other chain stores carried the bill to the courts. A permanent injunction against the bill was granted by the circuit court of Alleghany county in a decision on April 21, 1928.

"There is nothing characteristic of the chain store that makes it peculiarly and essentially different in organization, in plan or in method of doing business, from other stores similarly organized but not classified as chain stores," said the court. "There is in this statute an unreasonable and unjustifiable discrimination between the chain stores and other stores of the same general class."

The court said also that the $500 charge was "unreasonable, oppressive and confiscatory, and bears no relation whatever to the purpose for which the defendants contend this act to have been passed."

"Moreover, chain stores help to insure regular rentals, furnish regular employment, stabilize the value of real estate and spend a large part of the proceeds of their sales in the community," said the court.

* * *

CLEVELAND, March 22.—The Indiana state legislature has passed a bill which would require payment of license fees by all chain stores, including filling stations. The bill now is in the hands of the governor for his consideration.

Public Opinion Turning Against "Gas" Tax

A growing hostility towards increases in gasoline taxes may be observed in the editorial comment of U. S. newspapers.

The Denver Post has said: "Unwise taxation injures business and the nation."

The Indianapolis News: "It is obvious that if the tax on gasoline is raised to an exorbitant level the effect will be to discourage motor traffic."

The Lexington, Ky., Herald: "It would be a mistake to convert money now being received from gasoline taxes to other sources." Pointing to use of the tax for schools and other purposes the editors generally ask—whither are we drifting?

Malden, Mass. News: "Motorists are certainly doing their share."

Detroit Free Press: "The swollen gasoline tax fund unquestionably is producing much more than really is needed for a reasonable road program."

Dayton, O., Journal: "The present tax is about 16 per cent of the value of common grades of fuel. Slap a tax of that amount on bread or shoes or almost anything else in common use and what an uproar there would be."

Chester, Pa., Times: "The time to call a halt on taxes as high as 25 per cent is the immediate present."

Tacoma, Wash., Times: "Pretty soon there'll be enough taken annually from the motorist to equal the cost of a car."

Stabilization of Imports from S. America To Be Taken Up in New York

NEW YORK, March 25

PARTICIPATION of Sir Henry Deterding, managing director of the Royal Dutch-Shell group of oil companies, in the conference March 27 of the American Petroleum Institute on regulation of crude production, brings foreign supply directly affecting the industry in this country into the institute's program.

Sir Henry, head of the largest foreign oil interests, left London on the invitation of President E. B. Reeser, of the institute, and R. C. Holmes, president of The Texas Co., and chairman of the special institute committee, to take part in the conference.

While considerable has already been accomplished by the producing districts with flush production in this country in setting up the machinery to hold back their output of crude, their program hinges on what is to be done with crude imported from Mexico and northern South America now at the rate of over 250,000 barrels a day.

This amount is capable of being increased, and increased refining capacity in these countries in 1929 will supply quantities of gasoline, some of it for consumption in this country. Venezuela presents the biggest problem of any of these countries.

A big portion of this imported crude comes from Venezuela, where companies of the Royal Dutch-Shell group are producing about 150,000 barrels of the 370,000 barrels daily average production in that country. These same interests are active in Mexico, Colombia and the West Indies, which are factors in shipping crude into this country.

An invitation to attend the conference of directors of the institute with its special committee on world supply the demand of oil on the 27th was also extended to Sir John Cadman, chairman of the board of the Anglo-Persian Oil Co., Ltd., which is active in production in the far east.

Sir John, speaking before the institute at its annual meeting in December, urged consideration of the problem of crude oil supply in relation to demand, from a world viewpoint. He was unable to leave England to attend the institute meeting the 27, however.

In reply to reports that the attendance of Sir Henry Deterding at the New York conference was an effort to control not only production of crude but prices also the world over, W. C. Teagle, president of the Standard Oil Co. of New Jersey, issued a statement in which he said in part:

"The sole purpose of the discussions which are taking place is to limit waste through uneconomic production. Both federal and state authorities were present at the meetings in Houston and it is reported that the federal government will have an observer at the meeting in New York.

"In the event that the recommendation for restricting production to the 1928 basis is adopted by the directors of the American Petroleum Institute, it will be submitted to the Federal Oil Conservation Board and if approved by that body, the state authorities will be so advised and their cooperation requested.

"It would be disastrous to the public's interest to allow overproduction to increase as in the past few years."

Directors of the institute, who called the New York conference to hear final discussion on the plan presented at the meeting of the special institute committee in Houston the 15 to bring production in this country back to the average 1928 level, will find that the machinery of the regional committees is already functioning.

California's problem of cutting back production approximately 150,000 barrels daily to the average of 1928 will constitute the major work of any regional committee. That state is depending largely on gas conservation measures now before the legislature at Sacramento to bring about its reduction.

At a meeting of the California regional committee in Los Angeles March 21, F. C. Van Deinse, who was vice-president of the California Petroleum Corp., before its merger with The Texas Co., was appointed umpire for the California producing fields.

According to the present plans of the committee, state production will be cut to 650,000 barrels daily. Santa Fe Springs will be allotted 125,000 barrels, Long Beach 140,000 barrels, Seal Beach 33,000 barrels, Ventura Avenue 50,000 barrels, Kern River 13,000 barrels, Elwood 20,000 barrels and other fields are to be cut 10 per cent of their February, 1929, daily average production.

An open meeting of executives of California oil companies was to be held March 26 to attempt to formulate plans for state wide curtailment.

Several bills now before the state legislature have for their purpose the curtailment of waste of gas, which would bring about the conservation of oil. At least one of these bills has the support of the state administration and is considered likely to pass.

The California Independent Oil Producers, a comparatively new organization, is sponsoring a bill that will place control of production in the hands of the state mining bureau.

Two regional committees representing the Mid-Continent states of Oklahoma-Kansas and the southwestern territory, which includes Texas, Louisiana, and Arkansas, were said to have machinery currently at work for curtailing production to their 1928 averages.

Declines of the last few weeks in Oklahoma have brought current production to approximately the level sought for the Mid-Continent. The concern of that area, therefore, was mainly to stabilize operations so that the region's future production would fit with the natural economic outlet to which Kansas and Oklahoma are entitled under the plan.

Texas, Louisiana and Arkansas were being treated as a unit for stabilizing purposes. A decline of about 20,000 barrels in Louisiana and Arkansas as compared with the 1928 average was to be absorbed by Texas, which would give a net quantity of

Crude Supply Today and The 1928 Average Level

The latter is the figure to which the institute committee plans to limit present production.

	Barrels	
Mid-Continent and Interior	**1928**	**March 15, 1929**
Oklahoma	681,851	649,450
Kansas	104,732	96,450
N. Louisiana	40,495	36,050
Arkansas	88,238	74,500
Texas, except Gulf	595,557	655,600
Rocky Mountain	79,293	65,550
Eastern	111,098	108,750
Total	1,701,264	1,686,350
California	633,831	789,600
Gulf Coast		
Texas	106,322	129,000
Louisiana	18,593	21,200
Total	124,915	150,200
Total U. S.	2,460,010	2,626,150
Imports	218,035	253,000
Total Crude Supply	2,678,045	2,879,150

67,500 barrels necessary to be cut back, mainly in West Texas.

It was proposed to reduce production some 10,000 barrels in the Salt Flats field of southwest Texas, getting the remainder of the reduction in the Howard-Glasscock and Winkler areas of salt water encroachment on oil producing horizons.

Already allowable production of the prorated Howard-Glasscock area has been cut back 7500 barrels and a new movement is gaining ground for reducing the permitted yield of Winkler county from 175,000 to 125,000 barrels daily. Both situations contemplate back pressure control in the interest of avoiding physical waste, but the effect is to fit in with the general stabilization program.

With the exception of Venezuela and Colombia the foreign district comprising Mexico and northern South America will show production declines this year as compared with 1928. Some adjustment of production and exports made possible because of declines in certain countries will be absorbed by newer flush regions of the general territory.

Based on the present conservation program it is proposed to distribute production in Mexico and northern South America in 1929 as follows:

Mexico, 40,000,000 barrels, as compared with 50,042,000 barrels in 1928.

Venezuela, 137,000,000 barrels, compared with 105,162,000 barrels.

Trinidad, 9,000,000 barrels, compared with 9,700,000 barrels.

Colombia, 20,500,000 barrels, compared with 19,487,000 barrels.

Peru, 12,800,000 barrels, compared with 12,014,000 barrels.

Estimated potential crude oil production of Venezuela Feb. 1 totaled 518,882 barrels daily. This included 372,403 barrels average January exploitation and 146,479 barrels pinched possible production.

Companies of the Royal Dutch-Shell group were credited with potential of 204,056 barrels daily, including 152,508 barrels under exploitation and 50,206 barrels pinched.

Pan American Petroleum & Transport Co., through its subsidiary Lago Petroleum Co., had 182,439 barrels total potential which included 112,189 barrels exploited.

Venezuela Gulf Oil Co., with 123,212 barrels potential, was exploiting 101,062 barrels and had 22,150 barrels shut in.

The total production of three other companies was 9175 barrels, of which 5032 barrels daily was exploited.

Companies of the Shell group are operating 32 drilling rigs, of which 22 are in two competitively developed lake fields. Lago has 17 running and all in territory mentioned. Venezuela Gulf has a total of 23 operations in the country of which 20 are in these competitive areas. The Creole is operating 11 rigs elsewhere, half of them in wildcat territory.

There is a total of 101 operations in the country including eight tests of the British Controlled Oilfields Ltd., six of the Standard Oil Co. of California, operating through its subsidiary, Richmond Petroleum Co., and scattered wildcats of Union National Petroleum Co., Sun Oil Co., Venezuelan, Atlantic Refining Co., and the Pure Oil Co.'s subsidiary Orinoco Oil Co.

The zone of Lake Maracaibo competitive drilling is held almost in its entirety by the Shell, Gulf and Lago companies. When finally drilled up it will be easy to treat future producing areas as single-company controlled because of the large acreage involved in concessions. In most of the lake region the Shell group companies own the shore properties, the Venezuela Gulf a kilometer wide strip off shore and the Lago the lake bed proper.

It is proposed in the 1929 stabilization program to run 83,088,000 barrels of crude in Venezuela and Dutch West Indies refineries, as compared with plant capacity capable of handling 137,430,000 barrels yearly. Runs to stills in 1928 totaled 47,082,000 barrels.

Refinery runs in Mexico would be approximately 24,000,000 barrels, as compared with 27,093,000 in 1928 and plant capacity capable of handling 40,650,000 barrels.

Other refinery operations set up for South America in 1929 include:

Cuban West Indies 1,000,000 barrels compared with 1,100,000 barrels last year.

Trinidad, 8,000,000 barrels, compared with 9,000,000 barrels capacity.

Peru, 5,700,000 barrels, compared with 5,800,000 barrels capacity.

Colombia, 1,825,000 barrels, compared with 2,060,000 barrels capacity.

Ecuador, 150,000 barrels, compared with 1,100,000 barrels capacity.

Argentine, 13,500,000 barrels, compared with 14,000,000 barrels plant capacity.

Yearly runs to stills in 1928 compared with the foregoing figures approximately as follows: Trinidad, 7,025,000 barrels; Colombia, 1,104,000 barrels; Peru, 5,598,000 barrels.

When the Pan American Petroleum & Transport Co., refinery is completed at Aruba on the Island of Curacao, about July 1, it will have capacity of 110,000 barrels daily in the Dutch West Indies region. It is to be equipped with eight Cross cracking stills and a similar number of Kellogg viscosity breakers, the last mentioned with daily capacity of 80,000 barrels daily. These last are to be put in operation soon after April 1. The Pan American's subsidiary Lago Co., also has a 4000-barrel daily capacity plant on the shore of Lake Maracaibo.

An arm of the Shell group operates a Curacao refinery now running close to its capacity of 125,000 barrels daily. That plant is equipped with three Dubbs and three Cross cracking stills. Three more Dubbs stills are under construction.

Caribbean Petroleum Co. operates a 17,000-barrel daily capacity plant at San Lorenzo, Venezuela, and the Arend Petroleum Co., an 18,000-barrel refinery at Aruba. All of them operate on Venezuelan crude. Venezuela Gulf Oil Co. ships its crude to the Atlantic seaboard, refining only about 1400 barrels daily at Cabimas on the Maracaibo lake shore. The Gulf operation there is merely to reduce fuel to a desired flashpoint, the naphtha taken off being put back into export crude.

The five refineries in Trinidad operate on crude produced on that island. Two plants in Peru operate on Peruvian crude strictly. Small Ecuador plants capable of handling 1300 barrels daily get their raw material supply at home and the refineries of the Argentine run on their own crude plus small quantities from Peru and Mexico.

A plant of the Tropical Oil Co., in Colombia refines only crude produced in the Barranca Berkeja field. Total production of 20,622,000 barrels of crude is contemplated for Colombia in 1929, at the average rate of about 56,500 barrels daily. Of this total it is estimated 1,825,000 barrels would be consumed in Colombia and about 18,797,000 barrels exported.

Smaller Gains in Refinery Stocks in February

NEW YORK, March 22.—Increases in stocks of refined products continued in February, but at a little slower pace than in January, according to a preliminary summary of the American Petroleum Institute.

Gasoline stocks, which had gained 4,746,000 barrels in January, gained 4,026,000 barrels in February at plants east of California operating at 88 per cent of their capacity.

Pipe line and tank farm gross domestic crude stocks east of the Rockies gained 2,073,000 barrels in February, compared with a gain of 1,652,000 barrels in January.

Stocks of all refined products showed a net increase of 2,517,000 barrels in February, compared with a net increase of 3,455,000 barrels in January.

Kerosene and gas and fuel oils decreased, kerosene falling off 929,000 barrels, compared with a decrease of 397,000 barrels in January. Gas and fuel oils stocks fell off 2,005,000 barrels in February, compared with 2,345,000 barrels in January.

Lube oil stocks gained 29,000 barrels, compared with a gain of 418,000 barrels in the previous month.

Geological Association and A.P.I. to Work Constructively Together

By Paul Wagner
N. P. N. STAFF WRITER

FORT WORTH, March 23

FUNDAMENTAL research activities of the American Association of Petroleum Geologists will be continued as at present, supplementing the applied research of the American Petroleum Institute in covering the ground of industrial requirements.

This was made plain at the business session of the geological association, March 23, when Alex W. McCoy, chairman of the A.A.P.G. research work, outlined the procedure whereby that organization and the A.P.I. could be made to work most effectively and without overlapping.

In carrying on the A.A.P.G. work, Mr. McCoy pointed out that when stages were reached in fundamental studies where applied research became practical, or necessary, the problems would be turned over to the A.P.I.

John Y. Snyder, consulting geologist and oil operator of Shreveport, was elected president of the association, succeeding Russell S. McFarland, vice president of the Twin State Oil Co., Tulsa. Mr. Snyder polled 244 votes in the closest race ever staged in the history of the association. His opponent, Frank W. DeWolf, vice president and general manager of the Louisiana Land & Exploration Co., Houston, polled 242 votes.

Fred H. Kay, assistant to the president of the Pan American Petroleum & Transport Co., New York, was elected first vice president over E. F. Schram of the University of Nebraska, 255 to 201.

A. Rodger Denison, Fort Worth geologist, was elected second vice president, in charge of finances, over W. R. Hamilton of Tulsa, 234 to 223.

Dr. Frederick H. Lahee, chief geologist, Sun Oil Co., Dallas, polled the largest vote of any candidate. He was elected third vice president, in charge of the association's editorial work, defeating Charles Weldon Tomlinson of the Schermerhorn Oil Co., Ardmore, 281 to 182.

The retiring president, Mr. McFarland, sent a telegram in behalf of the association congratulating the United States Geological Survey on the occasion of the fiftieth anniversary of its founding, March 21.

In connection with the anniversary in Washington, President Herbert Hoover greeted several hundred celebrants, the event having special significance because of the fact that the nation's chief executive worked on the survey's staff as a field assistant when it first came into being.

Left to right, Fred H. Kay, New York, new first vice president, American Association of Petroleum Geologists, and John Y. Snyder of Shreveport, the new president

Mr. Hoover's survey duties then were in connection with geologic mapping in the Sierra Nevada mountains between terms at Leland Stanford University, Palo Alto.

The candidacy of Frank W. DeWolf and Fred H. Kay for president and vice president, respectively, of the geological association brought back together at Fort Worth the original heads of the Illinois Geological Survey.

When the Illinois survey was founded in 1905, Mr. DeWolf was placed in charge and Mr. Kay became his assistant. Later, Mr. Kay went to South America for the Sun Oil Co., thereafter joining the Pan American group companies. Mr. DeWolf came to Texas, joining the oil companies headed by the late Col. A. E. Humphreys in the early '20s. Two or three years ago he became operating head of the Louisiana Land & Exploration Co., active mainly in salt dome territory of southern Louisiana.

Mr. Snyder, the new association president, has a string of North Louisiana field discoveries to his credit. He originally mapped the structures on which the Haynesville and Bellevue oil fields, among others, are located. For many years he practiced as a civil engineer, taking up geological work as a hobby and making a wide name for himself.

Retiring officers, besides Mr. McFarland, are J. E. (Brick) Elliott, head of the Elliott Core Drilling Co., and other Los Angeles enterprises, including producing companies, first vice president; David Donoghue, land and geological director of Texas Pacific Coal & Oil Co., Fort Worth, second vice president; John L. Rich, consultant, of Ottawa, Kan., third vice president. McFarland and Elliott each served one year terms. Donoghue and Rich retired after serving three consecutive terms each.

The Society of Economic Paleontologists and Mineralogists meeting jointly with the geological association elected Marcus A. Hanna of the Gulf Production Co., Houston, as president. He succeeds Raymond C. Moore, state geologist of Kansas.

J. B. Reeside of the U. S. Geological Survey, Washington, succeeds G. D. Hanna of the California Academy of Science as vice president. Fred H. Plummer of the Texas Bureau of Economic Geology, was reelected secretary and treasurer. Dr. J. A. Cushman of the Cushman Research Laboratories, Sharon, Mass., continues as editor of the *Journal of Paleontology*.

Salt Basin Area Gets Major Attention At Geologists Meeting

FORT WORTH, March 23

TEXAS conditions, with special reference to the Permian salt basin region of the state's western area, occupied most of the attention of the papers presented at the fourteenth annual meeting of the American Association of Petroleum Geologists in Fort Worth, March 21-23.

Stratigraphic controls and structural development in Permian beds divided attention with results of studies of other formations found in a region recognized as the country's greatest known oil reserve.

As representing the advance guard of all exploratory work, preliminary to drilling tests for oil, the geologists discussed data calculated to throw light on problems peculiar to themselves. Conditions found at the surface in various areas, as related to underground structure formed the background of many papers.

The Dockum series beds of upper Triassic time, which overlie much of the oil producing area in West Texas and southeastern New Mexico, were discussed by John Emery Adams of Colorado, Texas.

A. Rodger Denison, second vice president, Fort Worth

In the area south of the 33rd parallel the Dockum consists of red and non-red conglomerate, sandstone and shale beds of terrestrial origin. An examination of the series in well samples shows, according to Mr. Adams, it is composed of two formations.

The names Santa Rosa and Chinle, as used for the Triassic of central New Mexico, are extended to include the equivalent formations in the Texas section. A critical study of the means used for separating the red beds of the Triassic and Permian shows that the gravel and non-lithified shales of the Triassic and the thick beds of very fine sandstone and hard shale of the Permian are the most prominent features.

Most of the structural relief of the oil producing formations of the Texas Permian was developed in Permian time, during and immediately after their deposition, according to a paper of Robin Willis, consulting geologist, Midland, Texas.

Mr. Willis said this is shown not only by the thickening and thinning of Permian beds but also in lateral variations in the character of the sediments, controlled by growing folds. He found, however, that certain important changes in Permian structure had been effected by later, probably Tertiary, earth movements.

Two types of folds were recognized by Mr. Willis, those controlled by settling of basins around pre-Cambrian elements such as the Panhandle arch (granite ridge), and those formed by actual deformative movements. He suggested the Winkler county "high" of West Texas as being probably an example of the last mentioned.

"It is probable," said Mr. Willis, "that the forces involved in the latter were horizontal rotation, rather than simple compression, and the pattern of the folds suggests they are controlled by a system of shears in the pre-Cambrian basement, local variations being due to differences in and varying resistances offered by the basement.

"It can be shown that some of the axes of the latter type have been shifted by post-Permian movements, which were probably controlled by an entirely different set of forces, though possibly localized on the same shear lines that controlled the Permian folds."

In another paper, Mr. Willis discussed stratigraphic distribution of sediments in relation to old land masses. He discussed four divisions of the Texas and New Mexico Permian, the Wichita-Albany, the Clear Fork, the Blaine and the post-Blaine periods of deposition, in relation to stratigraphic controls.

A paper by A. M. Lloyd and W. C. Thompson of Wichita Falls gave a correlation and brief description of Permian outcrops of West Texas in an area extending from Cretaceous rocks in Taylor and Nolan counties northward to Red River.

Dr. F. H. Lahee, Sun Oil Co., Dallas, third vice president

Outcrops of the different counties were traced in the field by the authors and data secured from various company and independent geologists. Columnar sections across the outcrops were used to illustrate the vertical relation of beds in different parts of the area.

Stratigraphy of outcropping Carboniferous and Permian rocks of the Trans-Pecos region, in Texas, was discussed by Phillip H. King and Robert E. King of the Peabody Museum of Natural History, New Haven, Conn.

In this region, most of the rocks mentioned lie beneath the Cretaceous beds, but several important exposures are found on the Marathon fold, in the Delaware-Guadalupe mountains. in the Diablo mountains, in the Hueco

mountains, on the intervening Diablo plateau, and in the Franklin mountains. Correlations were made by use of fossil evidence.

E. Russell Lloyd, of Midland, Texas, associated with Fisher & Lowrie of Denver, discussed the Capitan limestone and associated formations of Texas and New Mexico. The Capitan limestone was described, in part, as an immense fossil coral reef.

The reef itself can be followed from Capitan point, at the south end of the Guadalupe mountains, almost continuously to the vicinity of Carlsbad, New Mexico, where it dips under the plains.

Mr. Lloyd describes the reef as having formed a barrier separating an open sea with normal marine conditions on the south from a restricted and, in later stages, a supersaline sea on the north. Equivalent formations on opposite sides of the reef are described as markedly dissimilar. He found recognition of buried coral reefs and their relationship is highly important in interpreting the data of the Permian basin.

Major unconformities separating the upper Cretaceous beds from the underlying Comanche series in Texas were described by L. W. Stephenson of the United States Geological Survey, Washington. These unconformities also exist in relation to the overlying Eocene beds. Although several such unconformities have been previously indicated, he said they had not been recognized heretofore.

Structural features accompanying the forming of the Mt. Sylvan salt dome, western Smith county, east Texas, were discussed by E. A. Wendlandt and G. Moses Knebel, of the Humble Oil & Refining Co. The existence of a dome was verified by use of the seismograph and later detail geology indicated its presence. No drilling has been done there to date.

The belief is stated that the original salt bed was more than 1000 feet in thickness and probably 10,000 feet below the surface. The salt movement is believed to have originated along points of weakness. This initiating movement, plus isostatic pressure, and the downward push of a settling basin caused upward movement of plastic salt, thereby forming the present dome.

Domes of the type described occur in local synclinal areas in the main east Texas broad syncline and are commonly flanked by more or less well developed rim synclines. The rim synclines are believed to be due to settling, influenced by a thinning of the original salt.

Robert H. Cuyler, of the Texas Bureau of Economic Geology, Austin, discussed the Georgetown formation of the state's central region and its north Texas equivalents. The Georgetown in central Texas is 80 feet thick. As it is traced north, the formation is found to thicken to 410 feet at Red River. This total thickness of "Georgetown" in North Texas is divided into seven formations.

In his paper, Mr. Cuyler traces all the north Texas equivalents in order to determine exactly the thickness of each of the beds in the central Texas Georgetown.

Other papers dealing with Texas areas included "Correlation of the Pennsylvanian and Permian of the Delaware Mountains and the Rustler Hills in Texas and New Mexico," by W. Grant Blanchard, Jr., and Morgan Davis; "Correlation of the Pennsylvanian and Permian between the Glass Mountains and Delaware Mountains," by I. A. Keyte; "Subsurface Correlation of Beds Encountered in Drilling in Lea County, N. M., and Winkler county, Texas," by K. H. Crandall; "The Castile Formation Redefined," by Lon D. Cartwright, Jr.

Pre-Pennsylvanian geological conditions on the Front Range in Colorado were discussed by A. E. Brainard, Ponca City, H. L. Baldwin, Oklahoma City, and I. A. Keyte, Colorado Springs, in a joint paper. Suggestion is made for naming as the Buelah a new unit tentatively placed in the upper Devonian system.

Unconformity between the Tertiary and Cretaceous beds of Venezuela had been inferred for some time, but never actually described, according to William F. Jones of Tulsa and W. L. Whitehead of Cambridge, Mass. The writers discussed their findings in relation to published writings of others.

A paper by Frederick G. Clapp, New York, was intended to summarize and correlate the results of the papers included in the association symposium on geologic structure, of which the second volume is now in press. His subject was "The Role of Geologic Structure in the Accumulation of Petroleum."

W. B. Gealy of Pittsburgh discussed the mercury method for measurement of the volume of rock specimens in porosity determinations; Thomas B. Romine of Great Falls, Mont., dealt with oil fields and structure of the Sweetgrass arch; Albert W. Heeks of San Antonio, took up the geology of the Larremore area, Coldwell county, Texas; C. E. Dobbin of Denver, Col., discussed carbon ratios and gravities in the Rocky Mountain region; and Clyde M. Becker, of Chickasha, the structural geology and stratigraphy of southwest Oklahoma.

A new type magnetometer, known as the Hotchkiss dip, was described by Noel H. Stern, Shell Petroleum Corp., St. Louis, as designed to withstand rough field use. In principle, the instrument is designed to measure slight variations in the earth's magnetic field.

Donald C. Barton, geophysical consultant of Houston, gave tables of terrane correction; Roswell H. Johnson, of the University of Pittsburgh, took up oil well decline formulae in his paper; Homer H. Charles and James H. Page of the Oklahoma Natural Gas Corp., dealt with the shale gas industry of eastern Kansas; and J. E. Eaton, Los Angeles, discussed Monterey group beds of California.

The environment of life in Pennsylvanian time in North America was developed in a paper by Raymond C. Moore, University of Kansas; a history of crooked holes drilled for oil at Seminole, Okla., was given by D. R. Snow of Tulsa.

J. P. D. Hull, association business manager, Tulsa, and Russell S. McFarland, Twin State Oil Co., Tulsa, retiring president

Low Price Oils Displace Mid-Continent Crude at Seaboard Plants

FORT WORTH, March 23

VENEZUELA and other sources of low price oil, such as West Texas, California and the Gulf Coast, will displace increasing amounts of Mid-Continent crude in the Atlantic Seaboard markets, Ed B. Hopkins and H. J. Wasson, consulting geologists of New York, told the American Association of Petroleum Geologists meeting here March 21-23.

Mid-Continent oil, if confined to its normal economic market, they said, may yield to its owners in the long run a greater ultimate profit.

Venezuelan oil importance, the authors stated, rests on three factors: (1)—large reserves; (2)—favorable legal and political situation; (3)—economic advantages over many other sources of oil.

Messrs. Hopkins and Wasson had written their paper in advance of present curtailment efforts being made through the American Petroleum Institute, hence it took no account of the movement to curtail imports from northern South America.

Their paper stated that Venezuela's fairly rapid growth in oil production may be expected to continue until it reaches about 600,000 barrels daily in 1932. Beyond this point, they forecast, market resistance will probably hold expansion in check.

It is believed, said the authors, that neither tariffs nor any other artificial obstacle can stay the spread of Venezuela oil into markets it can supply most cheaply.

The result should be, they continued, to hasten the rationalization of Mid-Continent production to dimensions consistent with consumption within its own logical consumption zone.

That Mid-Continent market was described as one of splendid proportions and sufficient, if properly handled, to yield a satisfactory profit to all concerned.

Continuing, they said:

The necessity to consider Venezuela as a definite major influence intimately related to the oil industry in the United States is now universally recognized.

This South American country is by far the largest foreign competitor in our markets and it is displacing substantial percentages of the domestic fuel and gas oil output, and a small but growing percentage of our gasoline supply.

The relative magnitude of this new factor in the situation is shown in another way, by the following comparison of the 1928 production for Venezuela and our five foremost oil states:

	Barrels
Texas	255,354,357
Oklahoma	247,500,854
California	231,982,597
Venezuela	106,500,000
Kansas	38,150,878
Arkansas	32,137,934

It is quite unlikely that Venezuela will pass any of the three leading states for several years. At the same time it may be counted on to hold its own with the leaders, and for another year or so will probably show a relatively more rapid rate of increase.

All of these developments, so fraught with portentous significance for American oil interests, seem logical, and as we will attempt to show hereafter, more or less inevitable. How rapid will be the sweep of Venezuelan oil into our markets; who will suffer most; what can be done to prevent it, if anything; and just how serious is the menace after all, are live questions which are now receiving a great deal of attention. The writers, having observed closely over a period of years the phenomenon of Venezuela's rise to high position, have endeavored to answer these questions, in the hope that they may help to clarify the current thought on the subject.

George Sawtelle, vice president and general manager, Kirby Petroleum Co., Houston

In the first place, it should be thoroughly understood that Venezuela's rapid rise has been in no way related to the so-called boom developments as we know them in the United States. Production in a comparatively few years has reached substantial proportions, but this has not been the result of any greatly accelerated and extravagant drilling campaign. The frequently expressed thought that the Venezuelan operators are indulging in a reckless and uncontrolled drilling fight for greater and greater production, is quite erroneous; and the imputed accusation that these producers, instead of cooperating with American curtailment programs, are taking advantage of the overproduction situation to rapidly broaden their markets, is only partially accurate, and when thoughtfully scrutinized presents little ground for criticism.

With respect to drilling, which is assuredly one of the most important indices of the oil industry, the statistics show that the number of rigs in operation in Venezuela during 1928 was only moderately greater than during 1927; the average for the past year being 85 rigs as against 76 in 1927, and 80 in 1926. Moreover, out of these figures, which are for the entire country, approximately 30 rigs were occupied with wildcat and semi-wildcat explorations, leaving only between 50 and 60 as the number actually working in the producing fields.

These figures portray a condition of conservative moderation which is sharply emphasized when contrasted with the records of the various important oil producing states in the United States. The following table shows this comparison for the past three years, the states and Venezuela being arranged in the order of their 1928 production.

Average number of drilling rigs in active operation during the past three years

	1926	1927	1928
Texas	1109	973	910
Oklahoma	1129	1046	715
California	422	404	511
Venezuela	80	76	85
Kansas	352	226	223
Arkansas	104	49	62

From the standpoint of known resources and prospective oil reserves, Venezuelan operations could justifiably be conducted on a much larger scale. The area of the country, if superimposed on an equivalent territory in the

United States would cover the states of Texas, Oklahoma, Louisiana, and part of Kansas: and were such a geographical transposition possible, there can be not the least doubt but that the relative drilling activity within the areas so transposed would be vastly different.

To some extent, operations in Venezuela are held in check because of the natural disadvantages of the country, tropical conditions, lack of transportation, and adaptable labor, etc. However, all of these obstacles are merely incidental engineering problems, differing from those met with in American fields only in kind and degree, and are not the primary control factors bearing on the rate of drilling.

In final analysis, the credit for holding the situation to its present size, instead of one of even larger proportions, must be attributed to the operators themselves.

IT IS hardly to be supposed that the motives which prompted the Venezuelan producers to hold production to some 106,000,000 barrels in 1928, and which give promise of holding the present year's output to less than 150,000,000 barrels, were inspired by any abstract feeling of altruism toward the whole oil industry. Indeed, it is doubtful if this motive has ever exerted appreciable influence in the petroleum world.

The logical explanation seems to be closely related to the fact that the Venezuelan operators are, after all, also Mid-Continent operators, and though in this latter field they do not enjoy as in Venezuela, a full 100 per cent sovereignty, they do have a very substantial stake, one not lightly to be placed in jeopardy; and the disruption too rapidly of long established markets gives rise to many disagreeable repercussions that must be held in check, lest the violence of the economic changes play havoc with the consolidated balance sheets.

Under such conditions it becomes merely a matter of ordinary business judgment to pause and appraise the complex of new economic factors before pushing ahead too rapidly. This is apparently what the Venezuelan operators were doing in 1928, and what they may be expected to continue doing until the situation clarifies, and their Mid-Continent interests are adjusted to the new order of things brought about by developments in Venezuela.

We now approach the crucial fact, which is the real essence of this entire situation: the new production from Venezuela. A large part of this comes on the U. S. market at a time when consumption plus exports is steadily falling behind production plus imports, thus it displaces a certain amount of domestic oil in such markets as it can economically reach.

This is a very condensed statement of a complicated situation. The qualifying phrase "that it can economically reach," is the key to the problem, and by elaboration of this we will reach the answer to one of the original questions, that is: "who will suffer most as a result of Venezuelan oil?"

B. E. Thompson, Gulf Production Co., Fort Worth, chairman of arrangements committee

The "economic reach" of an oil territory is not a term of common usage. Possibly this is the first application of the words in this sense, and a definition may be in order. By "economic reach" we visualize a summation of various costs: operating, transportation, etc., which, acting as a sort of radius traces a boundary around a given centre of oil production, not a perfect circle, but a line which nowhere embraces territory in which the exchange value of crude oil as represented by the market for its constituent products is less than the sum represented by the radius. In other words, we recognize the existence of a logical market zone (The importance of "petroleum market zones" was first discussed by Michael O'Shaughnessy in "South American Oil Reports," issue of February 1928), surrounding each petroleum province.

In times of great demand, relative scarcity, and consequent high price, the boundaries of these zones will expand to the point where the zonal limitations will disappear, or at least retain little of their character as obvious boundaries. When the reverse set of conditions prevails, the zonal radii will lose their erstwhile elasticity; their limits will take on definite magnitudes, and the boundary of the natural sphere of influence which any oil field may properly dominate, will at length be sharply drawn as the true resultant of the economic forces involved.

The existence of these zones is nothing new. They have been with us since the beginning of the industry. Under what we call "normal times," that is, when there are plenty of buyers for crude oil anywhere, and not too much to sell, these zone boundary limitations practically efface themselves, but under even the most prosperous conditions the limits, though perhaps vague, can still be traced; thus while perhaps few persons have considered the matter, it is a fact that the Mid-Continent field has never marketed much oil in California (lubricating oil perhaps, but none of the other products), nor has either California, the Mid-Continent, or Pennsylvania, been an important factor in, for example, the Persian market.

Such cases could be multiplied indefinitely, but the point to be drawn from all of them is the same; namely, they are all examples of the limitation of market zones by the "economic reach" of the oilfields themselves.

As stated above, these zones have always been in existence but they have heretofore been more or less neglected, due to various special factors, and the fortunate circumstance that during the first few decades of this very young industry's history prices have in general been so satisfactory that the incentive was lacking for speculation concerning theoretical limitations that had no dollars and cents significance.

Now, however, we face a situation fundamentally different from anything with which the oil industry has been confronted. Reduced to its simplest terms, it is a change from a market condition where supply of the commodity was the doubtful variable to a condition where the ability of the consumptive requirements to use the available supply is the unknown factor.

ANY fundamental economic change must bring into play a train of new explanations and theories, in short, a new philosophy. Accordingly, we may well set about finding the terms with which the changed order or conditions may be expressed, and the new limits equated.

In going about this, we at once perceive that the question of economic zone boundaries assumes a position of great importance, and in fact seems to be about the only important new variable bearing on the changed condition. The oscillations of the zone boundaries are at last within our comprehension, and the nature and behavior of these phenomena become at once fitting subjects for analysis.

As time goes on, the investigation of these economic zone boundaries and the economic reach of a given oil region will probably assume an increasingly important place in the literature. For the present, a very

brief statement of the conception will suffice to support the conclusions toward which this discussion is leading.

In examining the general subject of economic market zones, we recognize the following principal variable, namely; the boundary of the zone itself. This unstable line expands and contracts, or oscillates back and forth in obedience to innumerable changing conditions among which may be noted the following:

(a) The discovery of important oil resources in a new locality.

(b) The rise or decline of available supplies in any oil region.

(c) The rise or fall of production costs in any oil producing region.

(d) The rise or fall of transportation rates between widely separated areas.

(e) A miscellaneous complex of factors including the general question of the various sources of motor fuel other than petroleum; their geographic distribution and progress toward economic importance.

It would perhaps be convenient for any particular problem if these variables could be assigned specific values and equated in such a manner as to yield a mathematical expression for the economic market zone boundary line that could be applied generally. Obviously, however, the numerous combinations that may arise from the inter-relationship of these variables precludes any such simple solution.

In general, the position of the economic zone boundaries will work themselves out by cut and try methods. Even a perfectly sound theoretical proof, for example that Salt Creek crude cannot be economically marketed in Trinidad, would hardly be accepted without a practical demonstration.

Let us now examine in the light of the foregoing brief theoretical background, the fact that major oil resources have been made available in the Republic of Venezuela.

First, it is obvious that the development of this oil territory sets up a new market zone tributary to it. This in turn means that certain other market zone boundaries must accommodate themselves to the new force, and brings us to the specific problem which is the determination of this new zone boundary, the resultant of the new Venezuelan oil, and the resistance to it of oil from older producing regions.

Speaking very broadly, there were in the United States, until two or three years ago, but two recognizable market zones: (1) the Pacific States, Western Canada, and the Orient tributary to California; and (2) the balance of the country, tributary normally to the Mid-Continent and other lesser fields, but absorbing when need arose, the surplus from the California zone also.

With the increase in available supply with respect to the demand, the price level has assumed a downward

Cresap P. Watson, president, Federal Royalties Co., Fort Worth

trend, and this in general has narrowed profits. There are exceptions, of course, to all trends, and thus specific properties embracing exceptionally prolific oil reserves and enjoying exceptionally low costs, will not be affected as much as the less fortunate majority. In general, however, the tendency during a period of abundant supply must be a contraction of the economic reach of any given oil field, as with prices declining and costs fixed, the only source from which profits may be obtained will be from savings in the transportation spread between producer and consumer.

These general forces of domestic oversupply, together with the particular new force exerted by Venezuelan production, are giving rise to the reshaping and splitting up of the old zones into new market areas logically tributary to the most economically available crude oil source.

It must be evident that when a market realignment is brought about by the factors just mentioned, the zone of greatest competition will be in territory which consumes the surpluses from oil regions located at a distance and in which more than one such surplus depends for its outlet. The outstanding example of such a territory in the United States is the Atlantic Seaboard. Here only a negligible percentage of the consumption is supplied by the local production. The balance comes from many sources; the Mid-Continent, California, Mexico, Texas, and new Colombia and Venezuela.

From the standpoint of transportation rates, and cost of production, Venezuelan oil enjoys a decided advantage in the Atlantic States markets over any other oil except:

(a) Oil from prolific Gulf Coast fields.

(b) Low cost oil from Mexico.

(c) Very low cost oil from West Texas.

(d) Very low cost oil from prolific fields elsewhere in the Mid-Continent.

(e) Very low cost oil from California.

Groups (a) and (b) are natural competitors of Venezuela for the Atlantic States market, transportation rates and production costs being about the same.

West Texas production is in part very low cost oil and in spite of the 55c charge for bringing it to the Gulf Coast, can compete on a fairly even basis with Venezuela in the Atlantic States, both showing fair profits when laid down north of Hatteras for $1.20 a barrel.

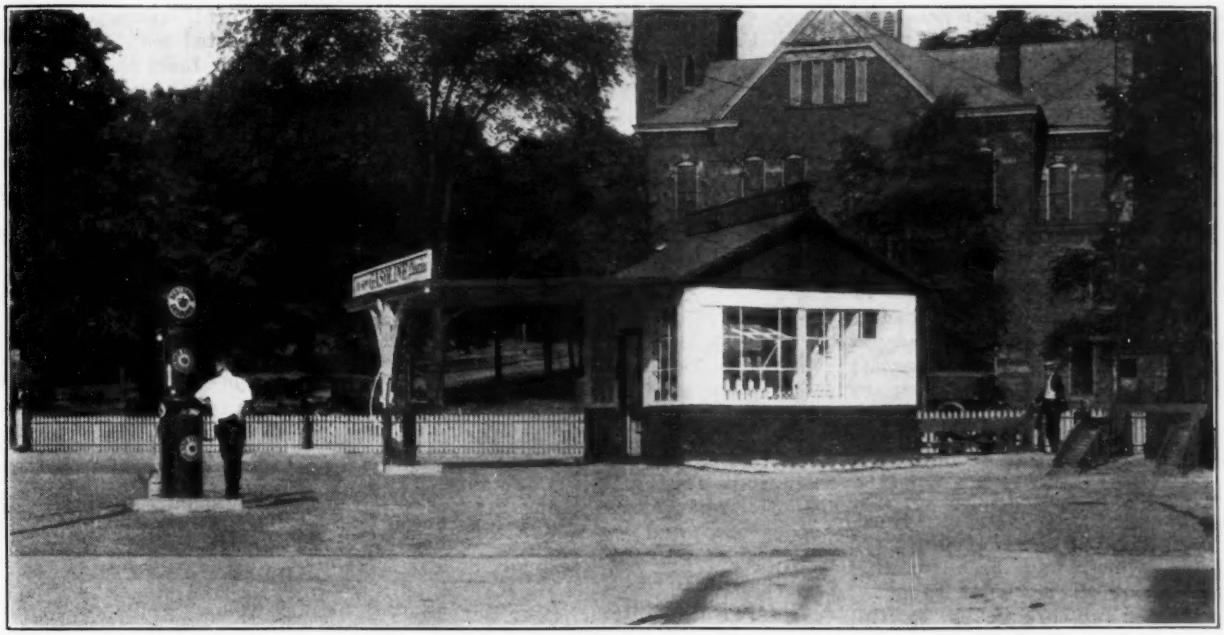
Groups (d) and (e) are not ordinarily logical competitors with Venezuela except insofar as their lighter gravity and more desirable refining qualities may compensate for the transportation disadvantage; but there are always the few exceptionally low cost properties in California and the Mid-Continent which can stand comparison with Venezuela, or even better records.

These properties, however, comprise only a small percentage of the Mid-Continent and California reserved, so the bulk of the oil from these territories could be, with further price declines, completely excluded from the Atlantic States market, at least insofar as this market can be supplied by Venezuela, Mexico, other South American countries, the Gulf Coast, and West Texas.

The most illogical participant in the Atlantic Seaboard market would seem to be California, and it is doubtful if this state will be an important factor in the East for many years longer, though there may be several severe periods of dumping before its market zone limit is finally pushed west of the Rockies.

Unless the Atlantic States crude market price falls to a very much lower level, however, there will probably always be some California oil, and especially gasoline, that can stand the high transportation cost into the eastern market, and perhaps the complete disappearance of this trade is not to be expected.

West Texas, so long as it can furnish fields of the Yates and Hendricks type, can force its production into almost any market it chooses outside of perhaps the normal California zone, and certain export markets far afield. The resistance to the spread of this oil into the Central states, however, will be so strong that probably by far the most of it will seek a market outlet in the East by way of the Gulf and tanker transportation from there.



A typical Standard of Ohio service station

Standard Won Back Its Gallonage in Ohio Improved Profits at Same Time

THE story of how the oldest Standard Oil company, which had been steadily losing gallonage due to general price cutting in its territory, regained that gallonage by meeting the prevailing price levels; but, nevertheless, kept its profits and even improved them, is contained in the annual report for 1928 of the Standard Oil Co. of Ohio.

That part of the report which discusses the company's changed operating and marketing policy is republished herewith.

Increasing its plant operations to maximum capacity, thereby reducing gasoline manufacturing costs, and making a narrower margin but on a larger turnover, was how the company turned the trick. An extensive advertising campaign was in good part responsible for the larger volume moved.

This 1928 report is the first the company has ever made in any detail to its stockholders. Its completeness is part of the policy of W. T. Holliday, the new president since about May 1, 1928.

* * *

(a) *Economic Conditions:* For several years there has been overproduction of crude oil, of refining capacity and of gasoline. The result of this has been the dumping upon the market of surplus gasoline at extremely low prices. This dumping probably has been more extensive in Ohio than in any other section of the country, due to the fact that Ohio is the meeting ground of all the currents of gasoline. Gasoline moving from the East westward, from the South northward, and from the West eastward meet in Ohio.

Furthermore, our company has been handicapped by the fact that companies having surplus gasoline to dump at sacrifice prices have looked for a place in which to dump it where there would be the least effect upon the sellers' own marketing territories. Ohio offered a natural target, because this company's marketing operations were confined to that state and therefore this company was not in a position to retaliate. Consequently, in recent years Ohio has been the dumping ground of the gasoline industry.

The overproduction of oil and gasoline in recent years has resulted in an overproduction of distribution facilities. As a class, the marketing companies operating their own refineries have tended to base their selling price of gasoline upon their own costs rather than upon the spot market for tank car gasoline. The past few years, therefore, have been characterized by rather wide margins between retail service station prices and the market tank car price of gasoline. Nowhere, perhaps, has this spread been so wide as in Ohio.

The result of this wide margin has been the attraction into the distribution end of the business of many new people and the over-development of distribution facilities. The gallonage of the industry per service station and per pump has steadily declined as a result of this over-expansion. Price cutting has been the method of most of the new-comers in the distribution end of the business. This price cutting not being met, the result has been an increasing proportion of the business to our competitors.

The situation outlined above has been more or less typical of the entire country, but from our observation the situation in Ohio has been much more acute than in most other parts of the country.

LAST May, therefore, the new management was confronted with the problem of a vicious circle, to-wit, a steadily declining gallonage and a resulting rise in cost per gallon. If our company continued to ask prices above the market fixed by our competitors, the gallonage would continue to decline and the costs would continue to rise. The only solution ap-

peared to be to meet the market and reduce our costs by procuring a volume of sales sufficient to operate our equipment and organization at their maximum capacity. This appeared to be simply invoking one of the fundamental principles upon which Standard Oil was founded, to-wit, a narrow margin of profit on a large volume of sales economically made.

THE actual tank wagon gasoline prices which the company had to meet last summer were lower than at any previous time since 1912, except for a period in 1915. If the company was to meet those prices without serious loss, economies would have to be effected in a broad and affirmative way.

(b) *Increased Production:* Accordingly, in the first part of May, the refineries, which had been running only at about 50 per cent capacity, were stepped up practically to full capacity. Even with the reduced runs of the first four months of 1928 the crude oil runs through the refineries were increased 29.1 per cent for the year 1928 over the runs for 1927, and the gasoline production from our refineries was increased 41 per cent for 1928 over the production for 1927. The average cost per gallon of gasoline, largely as a result of increased production but also on account of increased operating efficiency, was reduced .74c per gallon. The direct manufacturing cost alone, was decreased .38c per gallon of crude oil run. These savings were made in an affirmative way at the same time when refinery payrolls had been increased by eliminating the seven-day week. It is our belief that the increased cost of instituting the forty-eight hour week at the refineries was more than compensated for by improved morale among the employees.

Having decreased our manufacturing cost by increased production the next problem was to reduce our selling cost per unit by increased sales. Gasoline prices were in a chaotic condition. Posted prices meant very little because the oil companies were secretly cutting the posted prices to the point where a comparatively small part of the gasoline was being sold at the posted prices. We proceeded to meet these price cuts, with the result that at times during the summer of 1928 the tank wagon price at which gasoline was being sold to dealers and large commercial accounts was below the tank car price.

(c) *Advertising:* We felt, however, that price competition alone is not a sound basis for gallonage, and that sound merchandising is the essential basis. Among other things an advertising campaign seemed necessary. Heretofore this company had spent an insignificant amount per year on advertising.

We had been developing a gasoline product which compared favorably with California gasoline in anti-knock quality, and which from the point of view of volatility was considered unexcelled. This high-test fuel requires a comparatively small amount of Ethyl to bring it up to the standard of Ethyl gasoline. It was decided to give this product a new name and to concentrate our advertising upon it. The new gasoline was named Sohio.

Beginning, therefore, in July, 1928, an extensive advertising campaign was conducted through newspapers, local magazines, radio and billboards, as well as the distribution of circulars among dealers; also, our trucks and service stations which needed painting were painted in a color scheme which gave them attractive appearance and greater visibility.

In connection with the advertising, merchandising methods were given careful consideration. Our rate of compensation to service station salesmen was raised from a point below that of common labor to a place where men of the proper type could be employed, and training schools for our salesmen were established at convenient locations throughout the territory. The advertising program was backed by not only quality goods but a high quality of service and salesmanship.

THE result was a rapidity of increase of our gasoline sales beyond our hopes. The result of our concentration of advertising upon the premium priced gasoline, Sohio, was not only increased sales of Sohio, but, also, of our Red Crown gasoline and lubricating oils.

The sales in gallons of Red Crown gasoline for the last six months of 1928 exceeded the total gallonage of Red Crown sold for the same period in 1927 by approximately 30 per cent. The total sales in gallons of all gasoline for the full year 1928 were 38 per cent above the total for 1927, and the total gallonage of gasoline sales for the last six months of 1928 was 78 per cent above the last six months of 1927.

The percentage of increase in total gallonage of gasoline sales was continually rising through the last eight months of 1928. The gain, for example, in November, 1928, over November, 1927, was 98 per cent, while the gain in December, 1928, over December, 1927, was 114 per cent.

The cumulative effect was shown by the fact that whereas, according to the state gasoline tax figures and this company's own past records, the month of August represents the peak of gasoline consumption, nevertheless our tank wagon and service station sales of gasoline continued to rise to the first of November, reaching their highest point in October and even in the months of November and December as contrasted with October, showing much less than the seasonal decline.

The proportion of sales of our premium price Sohio gasoline to our total gasoline sales constantly rose. In December, 1928, the proportion of Sohio Ethyl gasoline sales at our service stations as compared to total gasoline sales at service stations was 45 per cent, and in January, 1929, it rose to 50 per cent.

In December, 1928, 26 per cent of our total tank wagon gasoline sales were of Sohio Ethyl gasoline, and in January, 1929, this percentage rose to 29 per cent.

Since a much larger proportion of tank wagon sales are made for use in trucks (whose owners buy on price and are hardly in the market for a premium fuel) than at service stations, the proportion of Ethyl sales by tank wagon would seem to be quite as satisfactory as at service stations.

Our company has become the second largest seller of Ethyl gasoline in the United States and there is, we believe, no company whose proportion of Ethyl gasoline sales is so high. The effect of our advertising, therefore, has been not only to increase our total sales, but, also, in the midst of the worst price cutting competition, to lift a very substantial part of our business up to a profitable quality basis.

As a result of this experience your board feels committed to advertising expenditures which seem very large in comparison to the expenditures in the past, but which seem necessary to yield us the proper maximum profit.

(d) *Economies:* As pointed out heretofore, through increased gallonage manufacturing and selling costs per gallon were substantially reduced. One of our largest items of expense was freight. Local freight rates are too high and all out of proportion to the long haul rates which bring competitive gasoline into Ohio.

TWO freight cases involving this question are pending, but it may be two or three years before any final adjustment of local rates is had. The matter of freight rates, therefore, requires the most careful consideration. For this reason, the traffic department was made a main department, reporting directly to the president. Every tank car sale or shipment was considered from the freight point of view.

Our refineries are located in the northern part of the state, whereas the natural current of crude oil and gasoline flows from the south and southwest. Shipments from our refineries to the southern part of Ohio, therefore, have had to go against

the current for a distance and at a freight cost that made our marketing in the southern part of the state distinctly disadvantageous as compared to our marketing in the northern part.

Since last May, therefore, the company endeavored so far as possible to sell its own gasoline in the northern part of the state, replacing it in the southern part of the state with purchased gasoline so far as quality gasoline from the south could be purchased at the right price. In this way, by the shortening of freight hauls and careful budgeting of supply and prospective sales, the freight cost per gallon was reduced about one-half cent per gallon.

A survey was made of past shipments and future budgets to determine economic location of refining capacity. This disclosed that the refining capacity at Cleveland was not sufficient to supply its economic freight area and that this deficiency had been supplied on a longer freight haul from Toledo. An increased refining capacity was logically called for at Cleveland, and as a consequence of this survey new double unit cracking coils are being erected at Cleveland.

Also, as a result of this survey this company in December, 1928, purchased a refinery at Latonia, Kentucky, which is within the switching limits of Cincinnati, Ohio. This refinery had been closed down for some time on account of lack of supply of crude oil.

By alterations and realignment, our manufacturing department saw the way to make it a modern, efficient plant, with a total cost both for original purchase price and alterations far below the cost of a new refinery. The plant is now being reconstructed and will be in operation about June 1, 1929, at which time it will have a crude oil capacity of about 8000 barrels (42 gallons) per day and in efficiency and cost of operation will compare favorably with modern refineries.

The problem of a supply of crude oil was solved by the undertaking of the Illinois Pipe Line Co. to extend a hundred-mile pipe line from the main line in Indiana to Latonia, thus bringing to the new refinery Mid-Continent crude oil. In addition to the necessity of saving freight the above mentioned enlargements of refining capacity were necessary to produce for us sufficient Sohio gasoline during 1929.

One of the larger operators in Ecuador, the MacKay-Harmsworth Oil Exploration, Ltd., which is now the Ecuador Oilfields, Ltd., a British company, produced 513,726 gallons of light crude and 273,308 gallons of heavy crude in 1927 in Ecuador; 555,600 gallons of light and 360,000 gallons of heavy crude in 1926.

Homer H. Johnson

Homer Johnson Dies In His Office

CHICAGO, March 23.—Homer H. Johnson, 45, president of the Johnson Oil Refining Co., died at his office in Chicago on Thursday, March 21. He had gone to work as usual that morning, apparently in good health. He was stricken by a series of heart attacks dying at 3:45.

Summoned to the office, his wife; his brother, I. A. Johnson; his brother-in-law, Joseph Horton and his doctor were with him at the time of his death.

Mr. Johnson has been president and general manager of the Johnson Oil Refining Co. since 1920. The company was founded by Mr. Johnson and his brothers in 1909 but for many years he retained his position as secretary and treasurer of the Central Refining Co., Lawrenceville, Ill.

Under his leadership the Johnson Oil Refining Co. has expanded from a company with $400,000 assets in 1920 to one of the important refining and marketing companies in the Middle West with assets totaling about $6,000,000.

He was born at Harrison Valley, Pennsylvania, Sept. 11, 1883. After attending grade school at Harrison Valley and Elmira, New York he was graduated from a military school at Peekskill, New York. He later attended Princeton University and was a member of the class of 1906.

Upon leaving Princeton, Mr. Johnson was connected for several years with the Central Leather company, manufacturers of sole and belting leather, with headquarters at New York city. Later he was secretary and treasurer of the Forrest Chemical company, Sheffield, Pennsylvania, manufacturers of wood alcohol, acetate of lime and charcoal.

He was married October 17, 1911 to Laverne Horton of Warren, Pennsylvania. He is survived by his wife; six children, Ruth, Prudence, Horton, Homer, Isabelle and Caroline; his mother Mrs. Sara L. Johnson of Elmira, New York; three sisters, Mrs. George H. McCann and Mrs. Fredrick W. Swan both of Elmira, New York and Mrs. Daniel W. Dexter of Galesburg, Ill.; and three brothers, James J. of Wilmette, Ill., L. Ralph of Cleveland, Okla. and Isaac H. of Evanston, Illinois.

Funeral services were held Saturday, March 23 at 3:30 p.m. at the Memorial Park Cemetery Chapel, at Evanston, Ill.

Index to Coming Meetings

American Petroleum Institute division of Development and Production Engineering, Texas-Louisiana-Arkansas division Baker hotel, Dallas, Tex., Apr. 3, 4.

Minnesota Petroleum Association, Radisson Hotel, Minneapolis, Apr. 3, 4.

Wisconsin Petroleum Association: Schroeder Hotel, Milwaukee, Apr. 10; Beaumont Hotel, Green Bay, May 15.

American Oil Burner Association, Hotel Pennsylvania, New York City, Apr. 9, 10, 11.

National Petroleum Association, Riverside Hotel, Cambridge Springs, Pa., Apr. 25, 26.

Mid-Continent Oil Scouts' and Land Men's Association, Wichita, Kan., Apr. 26, 27.

American Gas Association, Natural Gas Dept., Kansas City, Mo., week of May 6.

Virginia Independent Oil Men's Association, Richmond Hotel, Richmond, Va., May 15, 16.

National Oil Scouts Association of America, Fort Worth, Tex., May 20, 21.

Natural Gasoline Association of America, Mayo Hotel, Tulsa, May 20, 21, 22.

Independent Oil Men of America, Stevens Hotel, Chicago, Oct. 21, 22, 23.

Review of Late Production News

THE 30,000-barrel increase in crude production in the week ended March 23 was due mainly to the Seminole field which gained 27,050 barrels daily average. U. S. daily average rose to 2,655,600 barrels, a gain of 30,450 barrels, according to the American Petroleum Institute.

This 30,450-barrel gain in domestic production was offset by a fall of 30,427 barrels in daily average imports, to 222,571 barrels, so that total new crude supply was only 21 barrels more than in the previous week.

Total new crude supply was 2,878,171 barrels daily average, as compared with 2,878,150 barrels daily average in the week ended March 16.

The largest change in an individual field was at Santa Fe Springs, whose production fell 18,000 barrels daily average. Elwood-Goleta field gained 2500 barrels.

Salt Creek gained 5750 barrels. Winkler and Gray counties in west Texas each gained 2300 barrels. Salt Flat field in southwest Texas gained 5650 barrels.

Oklahoma-Kansas

With no new territory which can be regarded as proven outside of the Oklahoma City pool, most of the attention in the Mid-Continent is centered there, for the time being at least. Several wells are on top of the important Layton sand, and although mechanical delays have prevented their drilling in during the past week, it is expected that at least two will have tested this formation by this time next week.

The wells most likely to drill in are the Indian Territory Illuminating Oil Co. Foster Petroleum Corp. No. 1 Foster, in the center of the NE SW of 24-11N-3W, and the mid-Kansas Oil & Gas Co. No. 1 Fortson, in the center of the SW NE of 24-11-3W.

The rest of Oklahoma offered little of interest during the week. In the Wilcox sand area west of the Allen pool, in Twps. 5N-8E and 5N-7E, little is known of the possibilities other than that there is Wilcox oil present. Sinclair Oil & Gas Co. is still trying to get control of the Cromwell gas which broke through under the casing set on top of its Wilcox test in the SE NE SE of 24-5-7.

This well has most of the tests in the vicinity shut down on account of the fire hazard of escaping gas. The Wilcox sand discovery well in this area, in the SE NE SW of 7-5-8, is producing about 575 barrels daily.

In Kansas, the Valley Center pool now has 20 producers, although none of the completions of the past week proved or disproved much territory. Gross production for the field is now 10,413 barrels daily. Cumulative production from the field amounts to nearly a million barrels, being 986,238 barrels as of March 22.

California

Santa Fe Springs was attracting a great deal of attention today with the announcement by the Universal Oil Co. of the completion of its Blanchard No. 7 for 8500 barrels of oil and 5,000,000 cubic feet of gas. This well is the second to be completed in the O'Connell zone. Other tests of this zone and the Clarke will be made during the next week.

The Buckbee zone production continued to decline, but the field average will be greatly strengthened if the new deep sands are productive with forty-six wells below the Buckbee zone drilling to the Clarke and O'Connell zones.

Lawndale looked as though it might fool the pessimists when the Pacific Western's Howland No. 2 came in for 1250 barrels of clean oil last night. There are several other tests to be made very soon in this field that will enable the trend of the structure to be more accurately determined.

Elwood may be extended to the east if the Barnsdall-Rio Grande joint test continues to find good looking sands. This well is 6000 feet east of the discovery well. Developments are slow at the Continental's Carpenteria well as experts plan a way to bring it in safely.

Inglewood is to have its deep zone test sooner than was expected as the Brownmoor interests plan to deepen their No. 7 well in the near future.

An interesting wildcat location was announced by the Standard Oil Co. for the Hawthorn district. It is to be the Freeman No. 1 situated in the NW Sec. 5-3-14. This location is about a mile north of some gas wells.

Texas, New Mexico, Louisiana

Action of Howard-Glasscock operators in recommending a cut in their allowable production from 45,000 to 37,500 barrels daily will reduce the quantity of crude taken from west Texas prorated fields by 7500 barrels. Winkler and Pecos counties continue to be prorated, respectively, at 175,000 and 87,500 barrels maximum allowable daily.

A serious water condition made the Howard-Glasscock county recommendation necessary to deal with encroachment. The action fitted nicely, however, into the emergency created by the present general movement to cut back yields from flush regions under the American Petroleum Institute committee plan for dealing with overproduction at home and abroad.

Another effort to reduce Winkler allowable production from 175,000 to 125,000 barrels daily is contemplated. The success of such a step, plus the limiting of the Salt Flats field, in southwest Texas, to approximately 20,000 barrels daily would serve to reduce 1929 production of Texas, Louisiana and Arkansas, considered as a group, to the average level of 1928. The Winkler County move will be made on the ground of a need of increased back pressure to retard water encroachment on wells.

Field developments were quiet throughout the week in New Mexico, Louisiana and the various Texas districts.

Wyoming, Montana

The No. 1 Northern Pacific of the Ohio Oil company, in southern Montana, will be completed as a gas well; the fishing job has been given up. The gas will be used as an auxiliary supply for Billings.

Another well was completed on the Alkali Butte structure in Fremont county, Wyoming, last week by Gates & Halman. It is a shallow sand well, good for 50 barrels.

Argentina produced 16,400,000 gallons more oil in the first half of 1928 than in the entire year of 1927, and 22,500,000 gallons more than in 1926. Its output in the first six months of 1928 was 718,910,102 liters (about 17,975,000 gallons), compared with 653,470,099 liters in 1927.

Whether you prefer the *Stuffing Box* ABOVE *or* BELOW the Valve—

Type A
Truck Tank Faucet

If you prefer the stuffing box *above* the valve, Type A should be your choice. For fifteen years Type A has served the oil industry—and for fifteen years Type A has steadfastly maintained its reputation for *flawless performance.* Today, with many of the finest oil companies in the United States, it is *standard equipment!* The transparent view at the left shows the internal structure, and how it operates. Like all Wheaton Faucets, Type A is *self-closing*—the operator must *hold* the valve open, as it closes the instant the wrench is released.

the best of either type of faucet is a WHEATON

Type 24
Truck Tank Faucet

If you prefer the stuffing box *below* the valve, Type 24 is the finest faucet your money can buy. It is *counterbalanced*—and that *assures* slow, smooth, easy action. The transparent view at the right shows the internal structure of this faucet. When the valve closes—as the plunger goes down—the chamber above the counterbalance flange must fill, and to do so the liquid must pass between the close-fitting flange and the chamber wall. The slow, gentle closing action of Type 24 relieves both the faucet and the connections of all vibrations and shocks.

DO you prefer the stuffing box *above* or *below* the valve? That alone determines your choice between these two Wheaton Faucets. In either case, you are certain of securing *the finest faucet of its type ever built.* And, whether you choose Type A or Type 24, depending on your preference of design, you will be selecting a faucet that is typically *Wheaton* in design—Wheaton in material and craftsmanship, too. And that means a faucet that is made of special-analysis bronze, which neither crystallizes nor corrodes; a faucet built to designs drawn from years of experience and study; a faucet, finally, which has that precise *fit* and perfect *finish* which are found in all Wheaton products.

We will gladly send you a sample of either or both of these two Wheaton Faucets for a 30 or 60 days' trial. If it does not prove entirely satisfactory, you may return it for credit or refund.

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FAUCETS · VALVES · JOINTS · COUPLINGS · FILLERS · NOZZLES · FITTINGS

The Editors' Viewpoint

National Petroleum News

Irresponsible Customers Worse Than None

THE dream of a Utopia wherein only those who by sound business standards are entitled to enter the oil business, are admitted to it—or any other business for that matter—comes to the fore every once in a while. The dream has always ended up with some discussion and condemnation of the "demoralizers" and that has been all.

But now that the American Petroleum Institute has gone into the field of sound marketing practices, just as it had previously taken up good field operating and engineering, with standardization of drilling equipment—why cannot the subject of who should enter the oil business as a refiner and more particularly as a marketer, be studied?

And why not something worth while come from such consideration? A valuable result might not come in the first few months or perhaps in the first few years but certainly with all the ability that the oil industry has some educational ideas should be produced by such consideration which should tend, at least, toward restraining somewhat the incompetent and financially unworthy who enter the business only to disrupt it. Such education should cause the oil refiners to use better judgment as to whom they sell.

An agreement not to sell price cutters is not necessary, even though it were legal. Nor need there be a committee to pass on whether a man should be permitted in the industry, which also would not be legal nor good business. But the proposition can be clearly set forth as to what type of oil marketer is worth while and who should be supported, and what type is not worthwhile and with whom one would deal at his peril—all to the end of putting the brakes on dealing with the undesirable.

Somebody is selling the undesirables in the oil business, just as in every other business, and all it takes on the part of the sellers to make it harder for these undesirables to stay in business is a little back bone—and knowledge. By taking up consideration of the subject the Institute should be able to put forth certain requirements which are fundamentally desirable, and by the discussion forewarn not only the big executives of all refining companies but also their employes as to what type of customer to avoid and what to cater to.

It was not so long ago that a certain big refiner in talking to another oil man complained bitterly at a bad price cutter who had sprung up alongside of one of his pet and expensive service stations and was knocking his business to pieces. The refiner opined that the company who sold this price cutter was certainly a "xy?#!z" and then some. The other oil man told him, when the excitement had died down, that the last dozen cars received by this price cutter had come from this refiner's own plant.

This story is true and it is not uncommon. There is an obligation imposed by good business, upon every seller of goods to supervise the disposition of those goods so that at least they do not destroy his own business, and also that they do not destroy his fair, efficient and well managed competitors. But the matter can rest right with protecting one's own business. If each refiner looked to that there would be little trouble with undesirables.

It is all a subject that can very properly be studied by the American Petroleum Institute, not for the purpose of stifling competition but only to the end that the stockholders of oil companies who now number millions, get a fair deal for the savings they have entrusted to the oil men, and that the public gets the kind of service and the quality of merchandise that it should have, and at a reasonable price.

This subject is being discussed in other lines of business. Irving S. Paull, for years first chief of distribution of the Domestic Distribution Department of the Department of Commerce under Secretary Hoover, and now president of the Institute of Carpet Manufacturers of America, Inc., recently wrote as follows on "The Fallacy of 100 Per Cent Distribution" in SALES MANAGEMENT.

"IT APPEARS to be an inevitable tendency of overproduction, first, to overdistribute, and then dam up the channels of its outlets with surplus goods. The reaction is always unfavorable, and it cannot be otherwise. Yet we find today that all manufacturers are apparently striving to sell the largest possible amount of goods to the largest possible number of outlets, with not sufficient thought of the consequences.

"In the retail field we see everywhere the results of selling goods outside of their normal channel. We find coffee and preserves in drug stores, and many other articles that are alien. We find lead pencils and many unrelated items in cigar stores, and if the tendency is carried to its ultimate possibility we shall have all retail stores carrying pretty much the same goods.

"We have far too many retail stores, and their increase is encouraged by the determination of a great many manufacturers to secure 100 per cent distribution. When a large number of sales plans are analyzed there is no economic justification for crowding our distributive machinery with more outlet units than it can profitably endure. Even in the retail field it has been demonstrated time and again that the most profitable selling cannot be conducted through every existing store. Yet we have a swarm of specialty salesmen guided solely by the necessity of securing volume, who are encouraging, with every known scheme of selling, a lot of inefficient and poorly financed retailers.

"There are strong indications that we are not going to get very far with cleaning up distribution until both manufacturers and wholesalers determine to support those in the retail field who deserve to continue—those who

enter the field with proper capital, experience and character equipment—and refuse hazardous credit to those who are unqualified. Furthermore, all signs indicate that the determination of whether a newcomer should be furnished with merchandise depends just as much on the economic conditions of the community which he intends to serve as it does on his qualifications and the amount of his capital.

Concentrate on 60 Per Cent

"Basing my opinion on the study of the merchandising of many lines, I am convinced that any manufacturer today can sell more goods and earn more profit by concentrating his selling effort within about 60 per cent of the retailers in his line. In the merchandising of advertised specialties an enormously powerful factor is frequently overlooked, and it is the ability of the better class of dealers to sell the merchandise they buy.

Increases Selling Cost

"This duplication of selling effort and the determination to secure 100 per cent wholesale and retail distribution is also responsible for a large increase in the selling cost of many lines during the last few years. Not long ago the general sales manager of a specialty that is sold throughout the world said that during the last ten years the selling cost of his product had almost trebled. During this time the volume has increased enormously, but despite every attempt to curtail expenditures of money, selling cost has risen from approximately 5 per cent to more than 10 per cent. A simple analysis indicates that this increase is due largely to the fallacy of 100 per cent distribution. . . .

"An intelligent analysis of markets and outlets in any territory will reflect the folly of over-duplication of outlets. When a manufacturer does anything that tends to encourage over-duplication without contributing to the increase of consumption, he merely increases his selling cost and reduces the possibility that any other manufacturer in his line will receive an adequate profit on service rendered. He also encourages the demoralization of distribution."—W. C. P.

A New Principle ? in Selling Advanced

WE'D LIKE to see every oil man who belongs to his local automobile club write the parent organization of those clubs, the American Automobile Association, at Washington, and express his mind on the proposal of the A. A. A. that the Federal Trade Commission recognize the right of automobile club members to buy gasoline at a discount—just because they are auto club members.

Then we'd like to see these same oil men call attention of their friends in other lines of business to this economic fantasy the parent automobile association is trying to set up, in its intervention before the Federal Trade Commission in the matter of the oil industry's code of marketing practices.

General Manager E. M. Smith, of the A. A. A., is all worked up because the oil companies in Pennsylvania when they attempted to revise some of their marketing practices a few months ago in the light of reason, dropped the practice of giving two cents off the gasoline price to local auto club members, without notifying his organization. Such discounts should never have been given in the first place.

So the A. A. A. now sets up this new economic principle in a brief filed with the Federal Trade Commission; namely that an industry seeking public support—and that is all industry of course—should recognize the right of members of a cooperative association to buy at less than the individual customer pays, even though they buy on exactly the same conditions and the transaction costs the oil company just as much as in the case of the individual customer.

By cooperative associations Mr. Smith, of course, means the local automobile clubs. But why make these institutions the only beneficiaries of this advanced idea in marketing. Aren't the members of the Baptist Church down the street just as much entitled to buy their gasoline, or any other commodity, at a discount under this principle? And just because they are Baptists; not because it costs the oil company less to serve them than the average gasoline customer.

And the local Rotary Club, and Kiwanis and so on down to the neighborhood bridge club. They are as much cooperative associations as the local automobile club. It would soon be a rare individual who could not show membership in some club and thus be entitled to buy his gasoline, and groceries and hardware at a discount.

If the mission in life of the American Automobile Association is to club merchants into selling to members of local clubs at less than the going retail price, then the members of the local clubs which support the national A. A. A. should give some thought as to when this principle may be extended to their own lines of business.

In fact the avidity with which the A. A. A. has championed the efforts of what few local auto clubs have endeavored to secure a discount on gasoline for their members and the occasional broadside of bombast the association puts out against the oil industry, brings up the thought as to whether the A. A. A. may not be put to it for something to justify its existence under its present organization.

What statements the A. A. A. has made against the oil industry have been unfair and untrue. A few months ago the association issued a general newspaper release in which it was stated that gasoline shortages cost the motoring public $20,000,000 a year.

That figure was based on investigations made at only a few points in the country, and at those points principally at the kind of stations where pumps might be most likely to be found off measurement. The figure as to the grand total was purely an estimate based on the ratio of the shortages at these few points to the gasoline bought during the investigations. Could any more unfair method be used upon which to indict an industry of crookedness, which is what it amounted to?

The A. A. A. has picked out the oil industry for attack, of all lines of business which have some connection with the automobile business. A year ago it made much ado in its publicity of the fact there were 47 different prices at which gasoline was selling over the country. Why shouldn't there be, with several different grades of motor fuel on the market and hundreds of different freight rates from various refining centers?—V. B. G.

The *right* Tires for *your* Truck

Not only does the oil industry require tires of different characteristics from those suited to other business, but within the industry itself the types of hauling are specialized.

Goodyear recognizes these special factors in designing and building the *right* tire for your particular duty.

For Production work, by all odds the strongest, most powerful load bearing pneumatic ever designed is the new Goodyear Dump Truck Pneumatic Cord. It has the world-famous All-Weather Tread for gripping traction in any going. It gives 50% more mileage at about 25% more cost than ordinary pneumatics. It is Goodyear's response to the oil producer's demand for a big-tonnage tire at low tire cost per ton.

For Distribution work, Goodyear recommends the standard Goodyear All-Weather Tread Pneumatic—made with extra-durable, extra-elastic SUPERTWIST Cord—and the easy-riding, lastingly resilient, high-mileage Goodyear Super Cushion Truck Tire.

Call on Goodyear for expert technical recommendations on the *right* truck tire for your hauling. Goodyear Truck Tire Service Stations everywhere give prompt, competent and helpful service.

More Tons Are Hauled on Goodyears Than on Any Other Tires

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The Mid-Continent Skyline

By Lawrence E. Smith

Tulsa

THE statement of the Hoover administration that potential oil lands of the public domain would be "conserved" by locking them up so nobody could get at them has caused a deal of buzzing in the states affected.

Simply stated, the process of handling these lands starts with a permit to an operator. If he gets oil, the permit ripens into a lease. A share of the oil goes to the federal government to be divided among the national treasury, the reclamation service and the state in which the oil is produced. Mr. Hoover would stop the issuance of permits. In time, when the permits that have been issued either are converted into leases or are cancelled because of failure to develop, a segment of the oil industry would come to a standstill.

Conservation, so far as the public lands are concerned, appears to be predicated upon the withholding from use. Thus far, the conservation movement initiated by the oil industry has not acquired this meaning.

The public lands in question are, for the most part, located in the Rocky Mountain states and New Mexico, with some of minor importance elsewhere, as in Louisiana. The practical point for consideration right now is that the Rocky Mountain territory is near the point of an oil shortage.

To single out such a region for "conservation" because there is a world surplus doesn't jibe with the often avowed principle of the federal government that the consumer must be safeguarded. To put an end to the search for oil supplies for that territory is to compel the consumers to depend, in time, upon oil produced far away whose transportation costs would add to the retail price in an oppressive manner.

And if anyone doesn't believe that exploration in the Rocky Mountain states should continue, let him observe the battle that occurs whenever a barrel of new, light oil is found. Not many have been found in the past five years.

Secretary Wilbur manages to get himself crossed up in his statement on the future policy of the interior department. He assigns as a reason why a large number of permits already issued are to be cancelled the naive assertion that not enough money has been spent by the holders in development.

In other words, if you are wildcatting furiously, trying to find oil on the permit lands, you are safe, but if you aren't doing that, then the government, in the name of conservation, will take away the license it has issued.

The operators of the region most affected, through the Rocky Mountain Oil & Gas Association, are going to use every legal weapon at hand to get a fair break. It is fundamental in the oil business that the operators must keep reaching on ahead of development and acquiring more leases. Inactive acreage is the raw material.

In Wyoming, Montana, Colorado, New Mexico, the operators have little else but federal controlled lands on which to operate. Exploration, under the new policy, will soon be a lost art.

Oklahoma and Texas state conservation authorities fraternized at the recent American Petroleum Institute meeting in Houston. Here are two of them. Left, W. J. Armstrong, chief conservation agent of Oklahoma and, right, Goodson Rieger, deputy supervisor, Texas railroad commission

What a terrible thing the public land question has been! The inconsistencies and stupidities of governmental agencies have been so frequent that, at times, they seem to be fundamental. Let a field be found that threatens to break the market and the government in the past would cash in every chip it has in the vicinity. And now, in a region where the operators throw all their energy and resources into the hunt for a shirt-tail full of oil to supply the market, the government placidly announces that the business of hunting for oil must stop.

The best we can see in it for the Wyoming operators is that, after they have exhausted their present permits in the effort to find new oil, a change in policy or administration may come to the rescue and give them the go signal again.

* * *

T. B. Slick has now made it known that the sale of his properties to the Prairie Oil & Gas Co. does not signalize his retirement from the oil business. That might have been assumed before he spoke. His temperament is such that he would undoubtedly go into a decline if he were inactive.

The Mid-Continent has a fund of stories about Tom Slick—no one who has known him as long as a week ever calls him "Mr." He well deserves the name individual operator.

He has a few trusted associates, but he has a finger in every transaction, whether it involves the starting of a dozen wells or the purchase of a quarter section of wildcat lease. He works rapidly. When he senses a "play" in acreage, or inaugurates one himself, he gets on the ground and stays there until he is satisfied.

He is always buying, never selling —unless, as in the Prairie deal, he sells everything. He drives himself unceasingly and he is the wonder of the oil country in that respect, for he is slight in build, frail in appearance.

Tom Slick, as another operator once said, has natural oil sense, just

as some people have natural card sense. Much has been made of his alleged disbelief in geology. It isn't quite true. He doesn't employ geologists, although he has been known to in the past, but he does keep advised on regional geology.

He reads quite a lot of geological literature and marks for himself the trends, which he follows in his leasing activity. He has what is most important in his scheme of operating, an iron nerve. He plays each bet to its conclusion. As a result, he has lost several fortunes but he has also made several and now has one in his possession.

The game is the worth-while thing to him. He lives simply and there aren't many things in the world that money can buy that will contribute greatly to his happiness. We'll venture that life's big moments to him are those occasions when he is drilling in a wildcat well, waiting around for two or three days, sleeping in his car if accommodations are not close at hand, watching for that first whistle of gas up the casing that marks the opening of another field.

* * *

H. S. Howard has been made superintendent of steel storage in Oklahoma for the Prairie Oil & Gas Co. he succeeds the late J. J. Brazill. Mr. Howard has been doing similar work in the Ranger, Tex., district.

* * *

Married: In Tulsa, Mrs. Edith Hall and Dalton Lain, both of Tulsa. Mr. Lain is identified with the Oscar Howard oil interests.

* * *

Attributed to J. Edgar Pew, vice-president of the Sun Oil Co., by Paul S. Hedrick in the Tulsa World: "The man who says 'It's a small world, after all," never has had any experience hunting a lost golf ball."

* * *

M. J. Bonham, chief scout of the Marland Production Co. in the Texas Panhandle, has been transferred to Borger, Tex., with the closing of the district offices at Amarillo.

* * *

Carl Lumpkin has resigned his position with the Marland Production Co. as manager of the district land office in Tulsa. Mr. Lumpkin has had charge of this work for more than a year and has been with the Marland company for a much longer time.

* * *

Thomas R. Weymouth, president of the Oklahoma Natural Gas Corp., recently was elected president of the Oklahoma Utilities Association.

* * *

Once upon a time Dilworth, Okla., was a flourishing center of oil. Back about 12 years ago town lots fetched as high as $1,500. Now the post-office, about the last vestige of its activity is being closed.

* * *

As forecast in this column several weeks ago, E. W. Marland is getting back into the producing end of the oil business. He has organized a company whose temporary name is the Ponca Oil Co., with capital of a half million shares, no par value. Charles C. Brown, long associated with him in the Marland Oil Co. as vice-president and director, and Alex W. McCoy, who recently resigned as vice-president in charge of land and geology of the Marland Production Co., will be officers of the new company.

* * *

Died: In Tulsa, George J. Greene, 66 years old, member of the producing firm, Craver & Greene. His widow survives him. Burial was in Roxbury, Mass.

* * *

Died: In Tulsa, Horace P. Ander-son, 70 years old, one time oil operator. Two daughters survive him.

* * *

Several changes, transfers and addi-tions to personnel, have been announced by F. E. Bernsen, vice-president of the Lucey Products Corp., Tulsa. They are:

F. B. Hogins, who started with the old Lucey Manufacturing Corp. in the New York offices and was later transferred to the North Texas Supply Co., a subsidiary, has joined the accounting department in Tulsa.

Ray S. Levering has been appointed a vice-president. He is manager of sales for the southern district, which includes South Texas, Louisiana and Arkansas. He has been with the company for years, his most recent post of duty being Shawnee, Okla., where he was in charge of sales in the Seminole district.

Morris F. Turner has been transferred from Wink, Texas, to Oklahoma City in charge of the newly opened office there.

J. N. Dwight, formerly with the International Supply Co. and lately with W. C. Norris, Tulsa, is now with the Lucey company. He will have charge of the division which will introduce Buffalo pull rods and sucker rods, made by the Buffalo Bolt Co.

D. F. O'Rourke, of the credit department, has been made assistant treasurer, Tulsa.

* * *

A. J. Schlosser, superintendent of natural gasoline department for the Barnsdall Oil Co., has been made president of the Oklahoma Hospital Corp., of Tulsa. The corporation operates one of Tulsa's principal hospitals.

Magnolia Pipe Line Runs For Jan.-Feb.

HOUSTON, March 23.—Magnolia Petroleum Company, pipeline department, announces from Dallas headquarters the following crude oil runs for February, which are shown in comparison with January.

	January	February
Hewitt-Graham	141,615.48	133,894.71
Headleton	213,954.58	187,103.68
Cushing	110,814.20	96,918.72
Yale	44,609.55	37,216.66
Duncan	29,631.90	.....
Augusta	34,088.47	32,484.95
Walters-Beaver Creek	4,603.04	.....
Burbank	84.44	87.89
Wewoka	1,030,537.16	941,651.93
Seminole	85,854.27	66,732.61
Total Okla.-Kans.	1,695,793.09	1,496,091.14
Archer	24,956.54	20,865.52
Burkburnett	66,481.09	61,625.06
Comanche	16,665.84	13,641.41
Electra	95,010.62	82,815.33
Corsicana—Heavy	8,561.11	7,267.11
Corsicanna—Light	11,744.40	9,749.24
Henrietta	2,510.33	2,072.34
Iatan	24,756.57	21,146.46
Luling	319,837.49	287,285.75
Lytton Springs	37,184.65	33,797.22
Mexia-Wortham	22,020.42	19,152.64
Mirando	218,326.06	130,012.99
Olden	9,144.59	8,222.06
Panhandle	86,336.58	78,705.87
Panola	642.84	1,832.14
Stephens	8,509.17	7,612.13
Thrall	1,057.99	977.96
Crane-Upton	122,192.29	122,555.87
Glasscock	116,582.70	101,027.07
Winkler	111,902.21	125,944.88
Shelby County	306.08	.....
Total Texas	1,304,729.57	1,136,309.05
Haynesville	2,538.46	2,333.62
Bull Bayou	41,794.60	37,109.05
Cotton Valley	23,092.44	20,281.12
Pine Island	30,284.34	26,195.21
Hackberry	139,900.00	111,305.21
Total Louisiana	237,609.84	197,224.21
El Dorado Light	11,376.46	10,439.93
East El Dorado	4,224.36	2,554.49
Smackover	72,131.38	66,698.73
Rainbow	86,985.87	64,698.73
Total Arkansas	174,718.07	144,267.59
GRAND TOTAL	3,412,850.57	2,973,891.99

OKLAHOMA-KANSAS

Report for February		Dly. Avg.
Run	2,056,003.00	73,429.00
Shipments	1,839,486.00	65,696.00
Total stock	9,781,060.00	.....

TEXAS

Wichita, Wilbarger, Archer		
Runs	172,104.00	6,147.00
Shipments	164,843.00	5,887.00
Petrolia		
Runs	2,072.00	74.00
Shipments	2,072.00	74.00
Eastland, Stephens		
Runs	19,476.00	696.00
Shipments	.....	.....

TOTAL STOCK—76,201.00—North Central Texas Field.

To Aid Practical Men

TULSA, Mar. 22.—The Mid-Continent section of the American Petroleum Institute division of Development and Production Engineering, has petitioned the Institute to drop the word engineering from the title. In its place it was suggested that "practice" be used. The thought back of the request was to encourage participation of practical field men.

The meeting at which this action was taken endorsed the plan of holding the division's meetings in the field.

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PIPE FOR ALL PURPOSES

Mid-Continent Fixes Eyes on Oklahoma Pool With Several Tests Due

By John Power
N. P. N. STAFF WRITER

TULSA, March 23

THE Oklahoma City area, from the standpoint of oil to come, is the Mid-Continent's most interesting and closely watched pool at the present time. Other important oil producing areas of Oklahoma and Kansas have rocked along the past week with little activity, and as a matter of fact, without a great deal of promise of action to come. Producing additions to the Valley Center pool of Sedgwick county Kansas, did little more than take care of the pool's natural decline, production from the field showing little change.

A week ago it appeared as though the Oklahoma City pool would provide some hot news of some sort before another week had passed, but mechanical troubles of one kind or another have so far prevented any of the three wells which are on top of the important Layton sand from drilling in. It now appears that by the first of the coming week at least one, and maybe two wells will drill the plugs from the casing which has been set at about 5000 feet on top of the Layton.

Supporters of the pool expect much from this horizon, basing their expectations on the excellent showing which the discovery well encountered. In the first well, it showed 125 feet of sand, together with about 30 million cubic feet of gas per day and with some oil saturation of the sand.

The wells most likely to test this sand in the next few days are the Indian Territory Illuminating Oil Co.-Foster Petroleum Corp. No. 1 Foster, in the center of the NE SW of 24-11N-3W, which has 9-inch pipe cemented at 4907, with a total depth in the sand of 5032 feet.

A good showing of oil and gas was reported from this test when it cored the sand prior to running the casing. As this is written, the latest reports from the field were that the mud was being bailed from the hole preparatory to drilling the plug.

The same interests are rigging up standard tools on their No. 1 Trosper, a mile and a quarter north and a little west of the discovery well. This work should be completed before long, and it is likely that this well will be drilling ahead before next week is over. The I.T.I.O. which together with the Foster Petroleum Corp., is drilling 14 tests in the pool, has several more wells close to Tonkawa horizon, found at about 4000 feet, the most important of which is at present the No. 1 Emerson-Joyce, which is bailing mud preparatory to drilling the plug from the pipe set at 4221. Some few wells are shut down awaiting the outcome of this test, which is in the NE NE NE of 25-11N-3W.

Mid-Kansas Oil & Gas Co. has two wells close to the Layton sand. These are holes which this company took over from the Ramsey Oil Corp. along with the latter's holdings in the field.

The Mid-Kansas No. 1 Fortson, center of the SW NE of 24-11N-3W, is standardizing after having cored the Layton and run pipe on top of it. This well, in common with all the tests which have cored the Layton to date in this area, had excellent showings, indicative of the possibilities of this formation. Coline Oil Co. is another operator with a well about ready to test this possible pay strata. Its No. 1 Olds, Center SE NW 24-11N-3W, is cementing 9-inch at 4951 feet.

The behavior of the discovery well during the past week or ten days has given rise to much comment and guess work as to future possibilities of the Hunton lime from which this well is supposed by some to be producing. Three weeks or so ago the well started declining rapidly, its production dropping more than 50 per cent in about ten days, reaching a low on March 12 of 2092 barrels.

THE gas lift was applied without apparently doing much good. After reaching this low point, however, the well started to increase again, production gradually gaining until on March 21 the well made 4147 barrels, of which seven per cent was basic sediment and paraffin and two per cent water, after treating.

Gradually increasing temperature gave rise to the opinion in some circles that the increase was due to a hydrostatic pressure behind the oil, and that the gain in production was due to water encroachment instead of the application of the gas lift. Although the temperature has increased some 15 or 20 degrees F. at the well head, it is quite possible that some portion of it may be due to warmer atmospheric conditions, Spring having apparently reached the Mid-Continent in all its glories.

Production from the well has started to decrease again. Production for the 24 hours ending seven A.M. March 23 was 3879 barrels. But whatever the future may hold for the discovery well, it is certainly too early to kill off the area as an important source of supply in the near future.

The first well has made almost a half million barrels to date, there is still the possibility of even deeper production, provided the present production is coming from the Hunton, and the Layton sand is still an unknown quantity.

OTHER Oklahoma areas have singularly little to add to the week's news. Production is still being prorated in the Seminole district, in which there is at present, no new production in sight. Although there are 215 drilling wells in the area, exclusive of the St. Louis pool, there is comparatively little territory which can be regarded as proven and undeveloped, or likely to furnish important production.

Of course, the fact that no new pools are being discovered does not preclude their discovery by any means, but the fact remains that from a new pool standpoint, Seminole is at a standstill for the first time in a long, long while.

The Wilcox area in townships 5N-8E and 5N-7E, the Allen district is still too much of an unknown to warrant any predictions other than idle guess work. The Wilcox sand discovery well of the Sinclair Oil & Gas Co. in the SE NE SW of 7-5-8 is producing 575 barrels daily, an amount not large enough to make the well important as any thing more than proof that this deeper production is present in some quantity in this vicinity.

Sinclair is still struggling with the Cromwell sand gas well, in the SE NE SE of 24-5-7, offsetting Slick's Wilcox sand dry hole to the northeast. This well has been drilled to the Wilcox, which it encountered nearly 150 feet higher structurally than the same strata was encountered in Mr. Slick's dry hole. The Cromwell gas broke through around the bottom of the casing set on top of the Wilcox, and so far all efforts to repair the well and put it in shape

to test the Wilcox have been unsuccessful.

Other operations in the vicinity have had to shut down, as the escaping gas has made the fire hazard too great, even for wells some distance away. Information on this area will, then, probably have to wait the pleasure of this well of Sinclair's.

The possibilities of important production in an extension northwest of the Misener sand Maud pool do not appear too promising. The good well which the Amerada Petroleum Corp. encountered in its No. 4 Hallum, SE NE SE of 1-8-4, has declined about 50 per cent in the last ten days, while the structural position of the dry hole which appears two locations north and one east of it indicates that little can be expected in this direction. The dry hole, which was carried to the Wilcox sand, encountered the Misener about 58 feet lower structurally than did the No. 4 Hallum.

Although the week's completions brought the total number of producing wells in the Valley Center pool of Sedgwick county Kansas to 20, the natural decline of the older wells prevented much fluctuation in the fields total production. The 20 wells in the field are now averaging a gross of 10,413 barrels daily, a per well average but slightly in excess of 500 barrels per day.

The field as a whole has not done so badly from a cumulative production standpoint, having almost reached the million barrel mark, the actual figure as of March 22 being 986,238 barrels. The best well in the field the discovery had a cumulative production of 290,052 barrels gross. Six of the 20 producers in the field are safely on the paid-out basis, having produced a net amount of oil sufficient to pay for their drilling. New producers in the field still failed to add any new territory, they being without exception, inside locations.

* * *

Notes on the Week

The Misener sand, which of late has provided some excellent wells in the part of twp. 8-5, has cropped up in the Searight field, the morning glory of the Seminole pools. Gypsy Oil Co. No. 2 Nevins, in the SE NW SE of 32-10-6, is running 6-inch in the Viola at 4251 feet, having topped that formation at 4238. The well is flowing about 50 barrels a day from the Misener.

* * *

Production in the Seminole area is running consistently over the allowed amount as fixed by Umpire Ray M. Collins. The first half of the month the field averaged 6659 barrels over the allowed amount, while the figures for the present proration period indicate that the average daily production is nearly three times this amount over the allowed.

* * *

Leasing is proceeding at a lively rate in the western part of Kansas. Marland Production Co. is checkerboarding in Ellsworth county, and the Phillips Petroleum Co. and the Indian Territory Illuminating Oil Co. in Rush county. Phillips has also taken a block around section 20-10S-11W, in Osborne county.

Activity of Oil Buyers Makes Proration Harder Task

SPRING, besides bringing the birds and flowers, has brought a trifle more anxiety to the prorationists.

The plan of holding back the Seminole district, which was working along quite smoothly two weeks ago, is beginning to creak a bit. The umpire is having to travel his orbit more rapidly than he did and watch the figures more closely.

It is not thought that the proration is in any danger of failing, but the restlessness of the oil producer who is confronted by several purchasers soliciting crude is a thing that makes the going a bit rough. It just is hard to convince a man that there is an overproduction of his commodity when the buyers are camped on his doorstep every morning when he wakes up, asking that they be allowed to discuss things.

One learns of a little premium paying here and there that is apart from the regular in-season and out bonus maintained by some independent refining companies. The local trade heard during the week of a buyer who was in the market for about 5,000 barrels per day of high gravity oil and was ready to pay a substantial premium.

True, that sort of thing occurs each spring and summer, but it goes to show how difficult proration can be made. Umpire Collins asserts that the work must be kept up until July, at least, to assure that Oklahoma will hold to the level of its 1928 production, as pledged in the Houston meeting of the A.P.I. committee on world production and consumption for the entire country.

There is a re-shaping of the crude oil situation in Oklahoma now in progress. The outcome of it is not easy to foresee. One thing is apparent at this writing: The Prairie Oil & Gas Co. is firmly seated in the saddle and is headquarters for crude oil in these parts.

There was a period of two or three years when it was said that the Prairie's traditional leadership had been weakened. Honors did seem to be about even among three or four companies. There isn't any question now as to who is the big supplier of Mid-Continent light oil.

On top of the expansion program of the Prairie Pipe Line Co. comes the purchase by the Prairie Oil & Gas Co. of the T. B. Slick production—25,000 barrels net or more daily. There are various things supposed to be pending in the background but the obvious thing is that the Prairie is in shape to meet commitments now without going into its tanks to get the oil, which, at this market, is a painful thing to do.

Other changes are occurring. The position of the Sinclair Crude Oil Purchasing Co., for instance, is a topic of speculation. The company loses something—it has been figured all the way from 9,000 to 14,000 barrels daily—in connections when the Prairie formally takes over the Slick properties. Even now, the Sinclair is taking a little oil from storage and must, of necessity take more as the season advances.

Standard Oil Co. of Kansas is to lay about 60 miles of six-inch line from its refinery at Neodesha to Greenwood county. The Empire Pipe Line Co. will deliver oil gathered by it to the new line under contract calling for 4,000 barrels daily. The Prairie has been delivering to the Kansas company.

What makes the local situation still more interesting is the lack of fields in the making. Oklahoma City, in Oklahoma, is the only one in the state likely to add to its present output and it is a question how much it will add and how rapidly. The performance of the discovery well has not been of a nature recently as to make those who are drilling the deep, expensive wells happy. In Kansas, the Sedgwick county territory will increase present output, but it is believed, at a slow rate.

If the competition in evidence for Mid-Continent light crude truly reflected the national situation, the immediate future would be easy to read. There would be an advance in price, without doubt. Perhaps there will be anyway, as some of the prophets now assert. In fact, the chorus is a loud one again in these parts.

Lurking in the background is the memory of what happened several years ago to a nice Mid-Continent market when California went into action. There is that possibility again, plus Venezuela, both areas being included in the Houston pact but not quite so certain of performing on 1928's level as are other areas.

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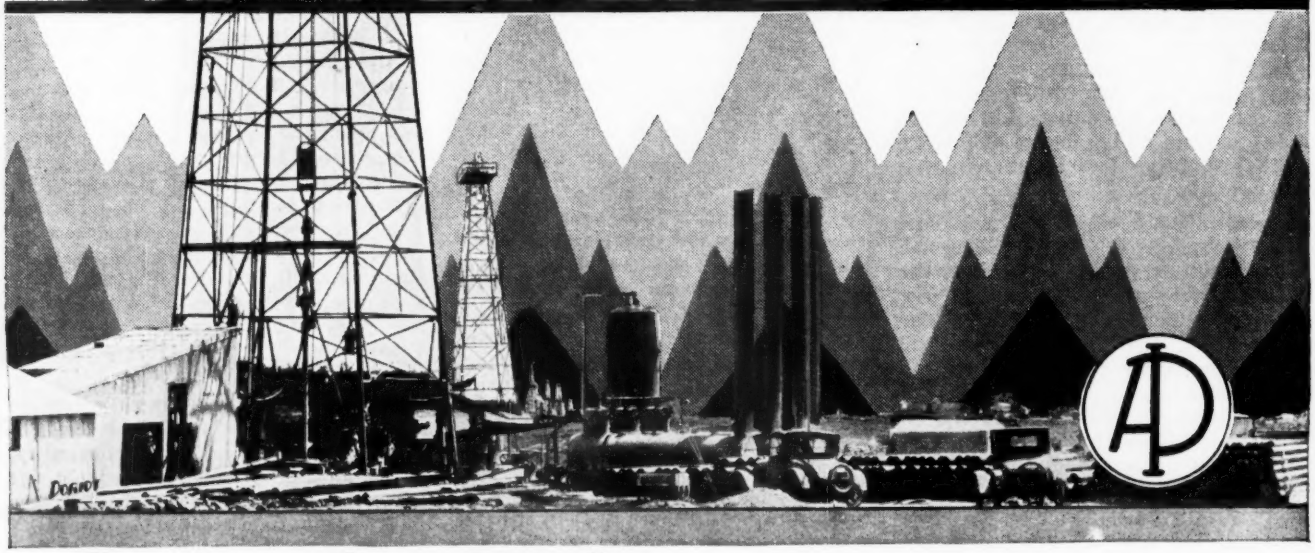

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Our Industry—A Page of Facts and Personalities

By Paul Wagner

National Petroleum News

Houston

In these days when the margin between cost and selling price is approaching zero, success depends upon the elimination of waste, says an editorial in "The Record," house organ of the Associated Oil Co., and affiliated companies. The editorial refers specifically to individual waste and not to that loosely used term in relation to the physical side of producing or manufacturing, nor yet to economics in their broader sense.

"We have in the company," says the editorial, "approximately sixty-five hundred employees. Suppose each of us were able to eliminate waste to the extent of only 25 cents per day. To the office worker it would mean a little more care in the handling of pencils, stationery, etc. To the man in the field it would mean a little more care in the use of lubricants and fuels and in the utilization of what would otherwise be labeled junk.

"Twenty-five cents a day seems but little, but it would amount to more than $1600 a day for the company. Multiply this by 300 working days for the year and we have $487,500—nearly half a million."

There is food for thought, not only in the Associated but other companies as well.

* * *

T. L. Bonstow, manager of the Mexican Eagle Oil Co., Ltd., (El Aguila) at Tampico, has returned to headquarters after an inspection trip to the Minatitlan refinery, up the Coatzacoalcos river from Puerto Mexico, Isthmus of Tehauntepec region. Scott M. Handley, vice president of the National Dredging Co. and manager of the United Dredging Co., Tampico, is in general charge of a Coatzacoalcos river dredging project for the Mexican Eagle.

* * *

Edgar Tobin, who operates the Edgar Tobin Aerial Surveys, Inc., at San Antonio, has been engaged by the Southern Natural Gas Corp., Birmingham, to map the route of its proposed pipeline from the Richland parish, Louisiana, field to Birmingham and Chattanooga. A 24-inch pipeline capable of transporting 95,000,000 cubic feet of gas daily is proposed.

* * *

It is reported that J. C. Templeton will begin a survey of the Orinoco delta for the Royal Dutch-Shell interests after completing his present task of going over the northern plains region of Venezuela at the head of a torsion balance crew.

C. Frank Kelsey

* * *

C. Frank Kelsey of Fort Worth, formerly vice president in charge of the Independent Oil & Gas Co.'s west Texas operations, has been operating for his individual account the last year. He is a partner with Sid Richardson in operations they are conducting jointly with White Eagle Oil & Refining Co., in the O'Brien area of southern Winkler county. Messrs. Kelsey and Richardson own 75 per cent of the O'Brien discovery well and the acreage on which it was drilled. The White Eagle owns 25 per cent.

* * *

John Lokken has been appointed manager of the Ketchikan district, Alaska, sales for the General Petroleum Corp., subsidiary of the Standard Oil Co. of New York. He is being assisted by Clarence Anderson, transferred from Harbor Island. Carl Waage, formerly Ketchikan district manager, is now in charge of all Alaska sales and Washington waterfront sales.

* * *

E. F. Walker of the Dallas headquarters engineering department, Magnolia Petroleum Co., has been transferred to the Oklahoma City producing division under J. C. Dinger.

* * *

Shifts in the Ranger, Texas, organization of the Prairie Oil & Gas Co. have been made as a result of the recent death at Tulsa of J. J. Brazill. H. F. Howard was transferred from Ranger to Tulsa to take Mr. Brazill's place. Thomas F. Hannigan of Tulsa replaces Mr. Howard at Ranger.

* * *

W. P. Laughter, formerly ninth district deputy supervisor of the Oil Division, Railroad Commission of Texas, at Big Spring, has been transferred to San Antonio. H. H. Fitzpatrick, formerly stationed at Pecos, replaced Mr. Laughter at Big Spring.

* * *

F. Julius Fohs and other officials of the Olean Petroleum Co., New York, have been making an inspection of Henderson county, Kentucky, properties. They plan to drill an oil test near Beech Grove, where the Olean company holds extensive acreage. L. L. Kemp will be in charge of field operations. S. M. Walker has been working the territory as a geologist.

* * *

John W. Choate, formerly of Oklahoma City, has moved to San Antonio, where he will engage actively in the operation of the Greyburg Oil & Refining Co., recently merged with Indiana Oil & Gas Co., subsidiary of American Controlled Oil Fields, Ltd. Mr. Choate is a vice president.

* * *

Adam L. Hoffman, now assistant cashier of the Pure Oil Co., at Chicago headquarters, has been with that organization and its predecessors 16 years. He entered the service of the Columbus Gas & Fuel Co., in 1913. Mr. Hoffman is a son of J. S. Hoffman, auditor of the Oil Fuel Gas Co.

* * *

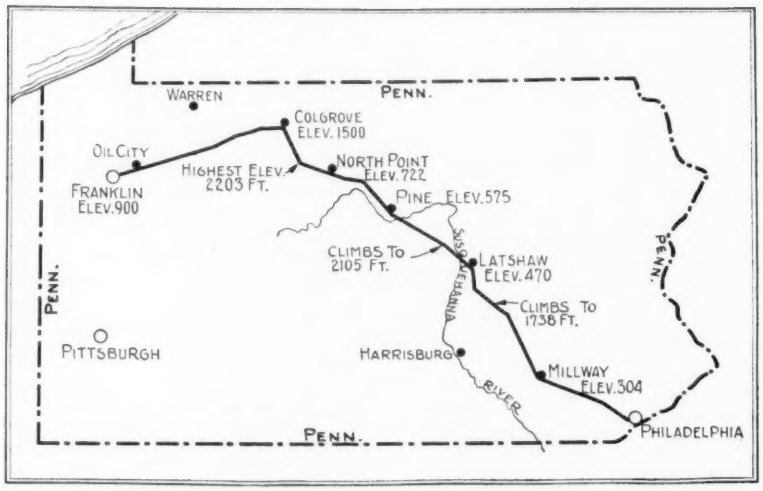
Companies of the Pan American group, including the Lago and Mexican Petroleum, with headquarters in New York, have moved to the new Chanin building, 122 East Forty-second street.

Reversing 350 Miles of Eastern Pipe Line To Move Texas Crude West

OIL CITY, Pa.

THE successful movement of Winkler county, West Texas, crude west by pipe line from Philadelphia harbor to the Atlantic Refining Co.'s refinery at Franklin, Pa., is emphasized in the recent annual report of the National Transit Co., which has been transporting this oil.

About 4000 barrels have been moved regularly since the first of last July westward through 340 miles of pipe line system laid out some 40 years ago to move Pennsylvania grade oil eastward to seaboard.



Sketch map of the National Transit Co.'s pipe line in Pennsylvania now moving 4000 barrels daily of Winkler county, West Texas, crude from seaboard to Franklin. Locations of the pumping stations and points where elevations are shown are relative only

"Indications are that the westward volume of traffic will increase substantially over the present volume," said F. D. Williams, president of the National Transit Co., in his report. "To handle this additional business, however, it will be necessary to make further changes in pipeline construction and add new booster stations."

With the present movement no new stations, nor additional pumping equipment at existing stations, has been necessary, Mr. Williams said, supplementing the statement about the westward movement of oil as made in his report.

This new business in handling West Texas crude for an inland Pennsylvania refinery, which is generally credited to an idea Mr. Williams had carried in his head for several years, is partly responsible for the net income of the company for 1928 jumping to $1,189,685, as compared with $630.622 in 1927.

"The total deliveries by the trunk line system in 1928 were more than 3,000,000 barrels greater than for 1927," read the National Transit's report. "This was mainly the result of an increase in the demand for Pennsylvania grade crude in the district served by the company's lines and also to the movement of Texas crude westward from Philadelphia."

Mr. Williams went on to point out that the pumping of oil westward did not start until early in the summer of 1928, and the improvement in pipe line operations as reflected in the 1928 report does not carry a full twelve months' volume of this business.

"This revolutionary movement, which entailed a reversal of operations over a system that had been utilized for over 40 years to pump oil eastward, necessitated considerable expenditures in pipe line changes to effect the desired result," read the company's report.

"When the eastward movement of Mid-Continent crude ceased several years ago, the trunk line operations were practically at a standstill; but the feasibility of pumping oil westward was realized by the management and the practicability of the project has already been very satisfactorily demonstrated."

SOME additional facts, not brought out in President Williams' report, showing some of the difficulties overcome in reversing the direction of flow in a 340-mile pipe line system, were brought out by L. E. Lockwood, an engineering executive with the company.

For two-thirds of its distance this line crosses the Alleghany mountains, with elevations varying from around 500 feet to over 2200 feet. For about 60 miles at its eastern end oil moving east would flow by gravity to seaboard. The five pumping stations at Millway, Latshaw, Pine, North Point and Colgrove were installed, of course, where they could boost oil east to the best advantage. The elevation of each to the east is lower than the pump station west, varying from 1500 feet at the Colgrove station to about 300 feet at Millway, the station farthest east.

In reversing the flow of the oil, it meant that the oil had to be pumped up a series of steps from one station to the next.

The greatest difficulty to be overcome, however, was the difference in the nature of the oil. Pennsylvania grade crude could be moved east at the rate of nearly 10,000 barrels a day, said Mr. Lockwood. The Winkler crude was much heavier and, in addition, contained hydrogen sulfide gas, which made it both corrosive and dangerous to work with.

Mr. Lockwood said, on the last point, he believed the quantity of this gas was so reduced by the time the oil reached the eastern seaboard terminal of the line that the hazard was greatly reduced. At any rate the company's men have reported no ill effects from handling this crude in the line and no corrosion has yet come to light in the equipment. The line has been used for this purpose now about eight months.

"The line had lain idle for almost three years before it was determined to pump oil west," said Mr. Lockwood. "It was necessary to test its full length to determine what part had to be renewed. It was tested with water at 900 pounds pressure, from station to station, until the full line would take 900 pounds."

The line is now operated at 600 pounds pressure because of about two miles of six-inch line near the eastern terminal, the rest being eight-inch. The Atlantic Refining Co. pumps the oil from Point Breeze, at seaboard, to Millway, farthest east of the National Transit's pumping stations. While the present volume of about 4000 barrels delivered at Franklin could be increased somewhat through the Atlantic Refining Co. increasing its pumping facilities at Point Breeze, new booster stations would have to be installed to handle a much greater volume of the oil.

Following are the principal elevations the National Transit line fol-

lows: Ninety miles west from Philadelphia the line ascends from seaboard to 1738 feet and then drops to 500 feet at the first Susquehanna River crossing. Then it climbs to 2105 feet and drops back again to 500 feet to cross the Susquehanna again. Then it climbs again to 2139 feet, then to the highest point of 2203 feet, and then downhill to Franklin, which is about 900 feet above sealevel.

Production Decline of Buckbee Zone Wells Less Sharp

LOS ANGELES, March 22

PRODUCTION from the Buckbee zone at Santa Fe Springs during the current week showed a decline, but not as great as that of a week ago. The actual decline in production for the 117 wells, reported last week, was 20,500 barrels as against a decline of 32,200 barrels for the 113 producing two weeks ago. The addition to the field through five completions and recompletions was 8500 barrels. The prospects look good for another production peak before long from the development of the new deep zones at this field.

The Universal Oil Co.'s Blanchard No. 7 came in March 22 for approximately 8500 barrels of comparatively clean oil and 5,000,000 cubic feet of gas at a depth of 6712 feet. This depth is within the O'Connell zone discovered by the Getty No. 19 several weeks ago.

The Getty has had a heavy cut, but has been allowed to run because there was some doubt whether the water was coming from the sand itself or, through a poor cement job from the water sand above it. The showing made by the Blanchard might indicate that the latter was the case.

Several other wells are preparing to test the Clarke and O'Connell zones within the coming week. Important among these are the Associated Oil Co.'s Clark No. 2 which is standing cemented at 7800 feet, the George F. Getty's No. 21, which is deepening at 7056 feet and the Shell Co.'s Slusher B-1 in the lower O'Connell zone. It is reported that several of the Buckbee zone producers will be deepened if the new deep sands prove highly productive.

Lawndale, the boon or despair of eighty odd operators, came into some prominence today when the Pacific Western Oil Co. brought in their Howland No. 2 for 1250 barrels of 31.9 gravity oil at 5900 feet. This well is off the townlot area on land that borders the Smith Petroleum Co.'s holdings, who brought in the discovery well for this field.

The Pacific Western's No. 1 is due for a production test within the coming week. The completion of this well has increased drilling and leasing activities along what is now supposed to be the trend of the structure. It is generally conceded that the Standard's Vance No. 1, the J. E. O'Donnell No. 1 and the Superior's Ritter No. 1 have either passed the sand found by the Howland No. 2 or are separated from it by a fault. The Smith Co.'s Durand No. 3 at 6147 had some encouraging showings at latest reports and will be watched with interest.

The Barnsdall-Rio Grande joint well Community No. 1 at Elwood will bear watching. Late last week it cored 20 feet of rich firm oil sand between 5130 and 5150. When last heard from it was drilling in hard shale that was encountered below 5150 feet.

This well is of unusual importance in that it is located 6000 feet east of the Elwood discovery well on what is thought to be a projection of a fold of the structure. The well will drill in search of a deeper sand that is thought to be present.

If no other sand is found the hole may be plugged back to test this sand at 5050 feet, or a new well may be put down a short distance in toward the proven area. The Continental Oil Co. will not attempt to bring in its Carpenteria well at once.

Seminole District Production, Week Ended March 21, 1929

MISSION

Company	Lease	Location	March 21 Wells	March 21 Prod.	March 14 Wells	March 14 Prod.
Amerada	Rice	5– 8–6	1	175	1	0
Carter	Fuswa	18– 8–6	2	545	2	490
Carter	Micco	8– 8–6	2	245	2	395
Carter & Denver	Melissa	9– 8–6	1	400	1	555
Darby	Judy	1– 8–5	1	105	1	85
Gypsy	Baby	6– 8–6	1	15	1	15
Gypsy	N. Barkus	6– 8–6	7	4,940	7	4,182
Gypsy	S. Barkus	7– 8–6	1	212	1	0
Gypsy	B. Doser	7– 8–6	4	1,472	4	1,710
Gypsy	Hardy	7– 8–6	4	273	4	600
Gypsy	C. Harjochie	7– 8–6	3	325	3	593
Gypsy	L. Micco	8– 8–6	2	30	2	105
Gypsy	S. Micco	8– 8–6	1	0	1	12
Gypsy	Mission	5– 8–6	5	2,658	5	3,465
Gypsy	Mosar	1– 8–5	3	845	3	930
Independent	Lawson	1– 8–5	2	1,110	2	1,765
Indep. et al	Payne	7– 8–6	2	945	2	570
Marland	Maines	7– 8–6	3	1,164	2	1,521
McMahon et al	Harjo	7– 8–6	2	877	2	877
Mid-Kansas	Moore	7– 8–6	1	60	1	110
Minnehoma	Neal	7– 8–6	2	492	2	762
Pine	Harjo	6– 8–6	2	514	1	817
Pine	Micco	8– 8–5	1	20	1	25
Prairie	Melton	6– 8–6	1	50	2	1,800
Prairie	Townsend	6– 8–6	1	430	1	0
Prairie & Gypsy	Owens	18– 8–6	1	180	1	195
Shaffer	Weaver	12– 8–5	1	600	1	145
Shell-Marland	Herndon	7– 8–6	1	229	1	277
Shell-Papoose	Maines	7– 8–6	4	1,265	4	1,384
Sinclair	Hardy	7– 8–6	3	778	3	939
Sinclair	Judy	1– 8–5	1	75	1	197
Slick	Crane	7– 8–6	1	985	1	495
Tidal	Nellie	12– 8–5	2	470	2	935
Twin State	Hayes	8– 8–6	2	1,770	2	820
Twin State	Judy	6– 8–6	2	2,285	2	1,830
Twin State	Ripley	12– 8–5	1	355	1	100
Totals			74	26,894	74	28,664

SUMMARY

	No. of Wells	Prod. Mar. 21st	No. of Wells	Prod. Mar. 14
Carr City	26	11,142	...	...
Little River	324	78,149	324	78,988
Maud	79	20,301	102	35,263
Mission	76	28,639	74	28,664
Bowlegs	306	35,214	306	34,285
Earlsboro	301	60,290	301	55,902
Seminole	279	35,481	279	31,656
Searight	70	10,460	70	9,770
St. Louis	325	99,062	321	95,419
GRAND TOTALS	1,786	378,738	1,777	369,957
Average per well		212		208

Completions in California, Week Ended March 16, 1929

Long Beach

Company	Well No.	Location	Depth	Init. Prod.
The Texas Co.	Harlow-Kent 5A	....	7205	1000
Cypress Pet. Co.	Crest 5	....	5788	375
Santa Fe Springs				
Bandini Pet. Corp.	Off 8 (Recompleted)		5885	1600
General Pet. Corp.	Santa Fe 206	....	5820	2300
General Pet. Corp.	Hill-Midway 2	....	5945	2000
Marston A. L.	No. 5	....	5300	1300
The Texas Co.	Weaver No. 4	....	5872	800
The Texas Co.	Wickman 3	....	5900	1200
Seal Beach				
Associated Oil Co.	Hellman 10	....	5520	2230

Ventura Avenue

Company	Well No.	Location	Depth	Init. Prod.
Shell Oil Co.	Taylor 27	....	6695	1005
Elwood				
Barnsdall-Rio Grande	Luton-Bell 6	....	3486	6000
Fruitvale				
Mohawk Pet. Co.	27-29-27 No. 3	....	4160	720
Kern Front				
Richfield Oil Co.	22-28-27 30	....	2290	(pump) 250
The Texas Co.	Midlands 5	....	2030	162
Midway				
Chanslor-Canfield Midway Oil Co.	7-32-23 5	....	3150	762
Standard Oil Co.	1-32-23 2	....	2600	167

Completions in Oklahoma and Kansas, Week Ended March 23, 1929

OKLAHOMA

Beckham County

Company	Well No.	Location	Depth	Init. Prod.
Magnolia	2	C SE SW 14-9N-23E	2820-2896	12M

Carter County

Company	Well No.	Location	Depth	Init. Prod.
Franklin	4	NE NW SW 11-2S-3W	2001-2711	70

Creek County

Company	Well No.	Location	Depth	Init. Prod.
McCulloch	2	SW C NW NE 31-14-9E	3849	Dry
Pennock	20	CEL NE SW 15-15-10E	3551	Dry
Barnsdall	3	SW C NE SE 28-16-9E	3392	Dry
Nowata	1a	SE C SW SW 9-16-9E	3111	Dry

Garvin County

Company	Well No.	Location	Depth	Init. Prod.
Ramsey	1	C SW NE 32-1N-3E	1344	Dry

Grady County

Company	Well No.	Location	Depth	Init. Prod.
Clark & Cowden	3	C SW SW 23-5N-7W	1933-1952	4M
Okla. Pub. Utilities	4	NW C SE NE SE 35-5N-8W	2200-2400	51M

Hughes County

Company	Well No.	Location	Depth	Init. Prod.
Ramsey	6	SW SE SE 18-5-8E	2568-2606	435

Kay County

Company	Well No.	Location	Depth	Init. Prod.
Industrial	4	NE C SW SW SW 36-28-1W	754-763	.6M
H. A. G.	4	SE C NE NW 28-27-1E	860-1010	.5M
Wilson	1	NE C SW SW NE 24-27-1E	805	Dry

Kiowa County

Company	Well No.	Location	Depth	Init. Prod.
Malernee	1	NW C 35-7N-15W	860	Dry
Ridgeway et al	1	CWL SW SE 7-6N-16W	602	Dry
Travis	1a	SE C SW NW SW 7-6n-16W	576	Dry
Brown	1	NE C NW NW NE 19-6N-16W	602	Dry

Le Flore County

Company	Well No.	Location	Depth	Init. Prod.
Collins	1	NW C SE 7-7-26E	1555-1595	.75M

Lincoln County

Company	Well No.	Location	Depth	Init. Prod.
Carter & Shaffer	1	SW C NE 31-17-5E	4370	Dry

Muskogee County

Company	Well No.	Location	Depth	Init. Prod.
Sioux	1	NW NE NE 19-13-19E	908	Dry
Bradley	1	SW C NW SE 12-14-18E	1550	Dry
Metzger	7	CEL SW SW 1-14-18E	986	Dry
Davis	1	NE C NW SW 20-15-15E	1626	Dry
Decius & Garrett	1a	NW C SW NE 18-14-18E	1650-1667	20
Boyle et al	1a	CNL NE SE 19-15-16E	1218-1226	18

Okfuskee County

Company	Well No.	Location	Depth	Init. Prod.
Kingwood et al	2	CNL NE SW 2-10-11E	1727-1744	25
Kingwood et al	1	SW C NW 12-10-11E	2026	Dry
Ramsey	1	C NE NE 36-11-9E	3330	Dry

Okmulgee County

Company	Well No.	Location	Depth	Init. Prod.
Tiger Mt.	2	CNL NE SE 2-13-14E	2550	Dry
Hyer	1	NE C SE SE 17-15-14E	2398 OWD	Dry
Aiken et al	9	NW C NE SE NW 22-13-14E	2474-2479	25
Kirkland & Son	1a	SE C NE 24-15-12E	1509-1584	Dry

Osage County

Company	Well No.	Location	Depth	Init. Prod.
I. T. I. O.	26	CWL NE 26-22-10E	2425	Dry
McCune et al	1	NW C SW NE 15-24-8E	565	Dry
Branstetter	2	CWL E½ SE 22-22-11E	1662-1704	15
Mid-Kansas	5	NE SE SW 36-22-8E	346-368	200
Phillips	3	NW C SE SE SW 21-25-12E	1630-1668	5

Pawnee County

Company	Well No.	Location	Depth	Init. Prod.
Operators	1	SE C NE NW 15-20-9E	2512	Dry
Henrico	4	SW C NW NE 6-20-8E	2507-2598	20

Pontotoc County

Company	Well No.	Location	Depth	Init. Prod.
Homaokla	2	SW NE SE 1-4-7E	2042-2049	40
Hughes et al	2	NW NE SW 15-4N-7E	1768-1772	10
Ogg & Hill et al	1	SW C 29-5-5E	2570-2579	90&90

Pottawatomie County

Company	Well No.	Location	Depth	Init. Prod.
Magnolia	3	CNL SE NE 26-7-4E	4285-4415	12&24
Magnolia	2	CNL S½ NE 26-7-4E	4326-4345	350
Shaffer	4	SE C SW 30-7-5E	3995-3997	205
Sinclair	2	SE C NW 18-7-5E	4100-4168	285
Phillips	3	NW NE NW 19-8-5E	4151-4147	470
Skelly & Margay	3	NE NW NE 18-8-5E	4161	425
Skelly & Margay	2	NW C NE 18-8-5E	4138-4163	480
Independent	5	NW SE NW 18-8-5E	4156-4188	2765
Gypsy	5	NE SE NE 7-8-5E	4088-4125	20
Shell	2	NW SW NW 21-7-5E	4576	Dry
Sunray & Cal-Cul	1	SW SE SW 19-8-5E	4466	Dry

Seminole County

Company	Well No.	Location	Depth	Init. Prod.
Shell & Marland	2	SE NW NE 7-8-6E	4609	Dry
McCulloch	1	SE C NW 20-8-7E	4383	Dry
Magnolia	3	SE NE SW 13-9-5E	4363	Dry
Gypsy	2	SW C NE 13-9-5E	4634	Dry
Carter	2	SW C SE 13-9-5E	4415	Dry
Indep. & Sands	1	SE NE NW 26-7-6E	3125-3143	60M
Carter	2	SW SE NW 26-7-6E	3212-3236	7M
Gypsy	2	NW SW NW 14-8-3E	4411-4427	50
Sinclair	2	NW SW SE 11-8-5E	4216-4229	685
Empire	3	SW NW SE 11-8-5E	4247-4260	2030
Barnsdall	7	NW SE SW 11-8-5E	4215-4227	605
Minnehoma	2	NW C 7-8-6E	4606-4607	150
McMahon et al	2	NW C SE 7-8-6E	4257-4279	667
Gypsy	4	SW C 6-8-6E	4616-4620	830
Shell	1	NE SE SW 32-8-7E	3369-3375	8
Skelly	4	NE SW NW 6-9-6E	4335-4353	535

Stephens County

Company	Well No.	Location	Depth	Init. Prod.
Twin State	2	SE NE NE 14-1S-4W	2913-3123	135
Shasta	3	NW C SW SE NW 2-2S-10W	2166-2177	30
Fossett et al	1	SE C SW 23-1S-9W	2515	Dry

Wagoner County

Company	Well No.	Location	Depth	Init. Prod.
Public Service	1	NW C SE SE NE 35-16-17E	862	Dry
Okla. Natural	3	NW C SW 22-18-17E	815-825	.7M

KANSAS

Butler County

Company	Well No.	Location	Depth	Init. Prod.
Rosenthal et al	2	SW NE NW 10-27-6E	3123-3139	200
Maxwell	3	NW C SE 31-24-4E	2674-2700	15
Skelly	1	SW C 4-26-6E	3195	Dry
Henderson & Holden	2	SW C SE 14-27-5E	2791	Dry
Dixie	5	SE SW NW 10-27-6E	3139	Dry

Chase County

Company	Well No.	Location	Depth	Init. Prod.
Haulkey et al	1	NW C NE 22-19-8E	250	Dry

Chautauqua County

Company	Well No.	Location	Depth	Init. Prod.
Elmwood	3	C SE SW 12-32-9E	1415	Dry
Griffin & Bell	2	NW NE NE 2-32-10E	1652-1659	45

Coffey County

Company	Well No.	Location	Depth	Init. Prod.
Union	1	SW C 9-22-14E	1600	Dry
Nathan et al	1	SW NE NE 29-21-14E	1845	Dry

Cowley County

Company	Well No.	Location	Depth	Init. Prod.
Lewis	2	SW NW SE 30-31-6E	2923-2955	10
Roth & Faurot	1	NW C 20-31-5E	590-598	.5M
Gypsy	1	NW SW NW 8-33-3E	3493-3502	200
Roth & Faurot	1	Lot 2 Blk-46 Musgrove Add. City of Winfield 22-32-4E	2942-2954	1750
Trees	1	SE SW NE 21-31-4E	2378-2390	120
Texas	5	NE NW SE 21-31-4E	2346-2355	100
Hull	5	SW NW NW 19-32-5E	2971-3035	125
Roth & Faurot	1	SE C NW 31-32-6E	3505	Dry
Kentucky N & O	2	CSL NW NE 13-34-6E	600	Dry
Barnsdall	1	SE SW SE 7-34-3E	3814	Dry
Shawver et al	1	SW C NE 22-31-3E	3188	Dry
White	1	C NW SE 4-32-5E	3630	Dry
Barnsdall	1	SE NE NE 19-31-5E	600	Dry

Franklin County

Company	Well No.	Location	Depth	Init. Prod.
Smith, Trice & Fisher	1	CEL SE 17-16-18E	1250	Dry

Greenwood County

Company	Well No.	Location	Depth	Init. Prod.
Sheedy et al	1	SE C SW 12-25-12E	1757	Dry
Henderson & Holden	3	NE SW NE 7-24-11E	1931	Dry
Parrish et al	1	NW C 15-24-12E	1715	Dry
Ritchie & Moore	1	NE C NW 33-24-9E	2409	Dry
Amerada	6	SW NE SW 29-22-13E	1666-1692	75
Sheedy et al	10	NE C 11-23-9E	2378-2406	125
Texas	2	NW C SE 21-23-11E	1876-1971	450
Empire	12	NE SW NW 25-22-12E	1645-1708	50
Reed & Wilson	2	C SE NW 28-26-9E	1039-1040	1M
Haverhill	18	NW SW SE 4-23-13E	1606-1639	35

Jefferson County

Company	Well No.	Location	Depth	Init. Prod.
Northern Co.	1	NE NW NW 13-9-19E	3440	Dry

Labette County

Company	Well No.	Location	Depth	Init. Prod.
Crowell et al	1	SW NE NW 1-33-17E	1375	Dry

Nemeha County

Company	Well No.	Location	Depth	Init. Prod.
Nemeha	1	NW C 19-3-11E	3250	Dry

Osage County

Company	Well No.	Location	Depth	Init. Prod.
Mull Vit	1	SW NW NE 8-17-17E	2738	Dry
West et al	1	SW C NW 27-15-16E	1350	Dry
Baker et al	1	C SE SE 3-15-15E	1700	Dry

Pottawatomie County

Company	Well No.	Location	Depth	Init. Prod.
Crawford	1	SW C 11-10-12E	2195	Dry

Wabaunsee County

Company	Well No.	Location	Depth	Init. Prod.
Eskridge	1	NE SE NE 15-13-12E	3675	Dry
Doric	1	NE C SW 24-11-10E	1530	Dry

Wilson County

Company	Well No.	Location	Depth	Init. Prod.
West & Williams	1	C NE NE 28-30-17E	1400	Dry

Woodson County

Company	Well No.	Location	Depth	Init. Prod.
Peerless	2	CNL NE NE 23-26-14E	1302	Dry
Peerless	11	CWL NE NE 23-26-14E	1203-1277	200

New Field Operations in Oklahoma, Kansas, North, North Central, East Central, Panhandle and West Texas, Week Ended March 23, 1929

OKLAHOMA

Alfalfa County

Company	Well No. & Farm	Location
Smith Bros.	1-Forbes	NE C SE NW NW 12-27-11 W

Carter County

Company	Well No. & Farm	Location
Gilmer	1-Hernstadt	NW NE NE 26-1S-3W
Magnolia	3-Gill	NW SE SE 23-1S-3W

Cotton County

Company	Well No. & Farm	Location
Silurian	4-Chambers	NE C SE SW NW 2-2S-10W
Derden & Pruitt	1-Ednar	NE C SW 21-2S-11W
Heydrick et al	1-White	NW NE SE 18-3S-11W
Herbow	1-Brown	NE C SW 35-3S-12W

Creek County

Company	Well No. & Farm	Location
Central Com.	2-Hay	NW C SW 10-17-10E
Magnolia	10-Lewis	CWL SW SW 27-17-7E OWD
O'Hara et al	1-Ralston	SE C 32-18-10E
Tidal & Markham	7-Prentice-Johnson	CSL NE NW 2-19-7E OWD

Garfield County

Company	Well No. & Farm	Location
Marland	2-Whipple	SW SE SW 19-23-3W

Greer County

Company	Well No. & Farm	Location
I. T. I. O. et al	1-Fee	C NE 17-6N-24W

(*Continued on Page 47*)

New Field Operations in Oklahoma, Kansas, North, North Central, East Central, Panhandle and West Texas, Week Ended March 23, 1929

(Continued from Page 46)

Jefferson County

Company	Well No. & Farm	Location
McCaslin	1-Bohamon	NW C 9-6S-6W

Kay County

Marland	4-White	NE C NW 17-29-1E
Marland	2-a, North Lease No. 1	NW C NE 12-26-2W OWD

Kiowa County

Cloyes	1-	NW C NE 33-7N-17W
Stahl & Burris	1-Ditmar	NW C SE SE 18-6N-16W
Bickett	1-Ditmar	NW C SE 19-6N-16W
Mead & Amphlett	1-Prough	SE C SW SW 29-6N-16W

Muskogee County

Bement	5-Flowers	CWL SW NE (Twin) 5-13-16E
Powell et al	1-Smith	CSL SW NW 13-14-18E
Rose	10-Howard	CEL NE NE 30-15-16E
Mack	2-Friday	CEL SE NE 7-15-15E

Okfuskee County

Barnsdall	1-Soweka	NE C SW 29-12-7E
Betty Ann	1-Harjo	NW C SE 5-12-11E
Kingwood & Misner	1-Lowe	C E½ SW SE 16-10-11E
Champlin	12-Lewis	SW C SE 15-11-11E (Twin)
Leard	1-Jimboy	NE C SW 12-11 10E
Ramsey	2-Severs	SE C NW NE 36-11-9E

Okmulgee County

Kirkland & Son	1a-Prince	NE C NW NW 20-15-13E
Kirkland & Son	1a-Green	NE C SE 24-15-12E

Osage County

Tidal	1-	SW C NE 29-21-11E
Branstetter	1a-	SW C 12-22-11E
Cont. & Prairie	2-	SW C SE 31-24-9E
Galt-Brown	5-	SE C NW SE NW 7-24-8E
Oliphant et al	1-	SW NE NW 31-27-9E

Pawnee County

Flanagan & Johnson	1-Townsite	CNL NW SE 25-20-9E OWD
Stein	2-Clark	NE C SW 9-20-7E
Edwards et al	1-S	SW C NW NW SW 30-21-9E
Moore et al	1-Purcell	CNL NW SE 28-21-8E
Adamson	4-Thomas	NE C SE NW 25-21-8E

Pontotoc County

Ramsey	1-Kerr	NE C SE 1-4-7E
Hughes et al	3-Gann	SE C NW 15-4-7E

Pottawatomie County

I. T. I. O.	1-McGee	SE NE NW 26-7-4E
Independent	1-Rhodd	NW C 16-7-4E
Independent	3-Wallace	SW C 14-7-4E OWD
Mid-Continent	3-Rogers	SE SW SW 5-9-5E

Seminole County

Gypsy	1-Thomas	SE C NW 9-6-7E
Indep. & Mid-Kansas	1-Little	SW NW NE 26-7-6E
Independent	2-Carpenter	SE NE NE 27-7-6E
Carter	2-Larney	NW SW NW 26-7-6E
Slick	4-Wood	NE NW SW 26-7-6E
Slick	2-Harris	SW NW NW 26-7-6E

Stephens County

Coline	2-Peers "B"	NW C NE SW 32-1N-8W OWD
Magnolia	1-Sims	SE SW SE 2-1S-4W
Fossett et al	3-Adams	SW C NW NW SW 19-1S-8W
Pace et al	1-Cooper	CWL SW NE 16-2S-7W

Wagoner County

Cherokee Public Service	1a-Marshall	CWL SW NE SE 35-16-17E

KANSAS

Butler County

Empire	2-Hutchinson "A"	NW C NE 34-27-5E
Empire	10-Sharrock	SW C SE 27-27-5E
Empire	9-Sharrock	SE C 27-27-5E

Cowley County

Shawver et al	1-Liggett	NE C NW 15-31-3E
Marland & Shawver	1-Stout	SE C NW 10-31-3E
Hull	6-Barlow	NW SW SW 19-32-5E

Elk County

Blaudill	1-Rettig	NE C 29-31-10E OWD
Wyatt	1-Baker	SE C NE SW 10-31-10E

Greenwood County

Empire	1-Laird	NE C SW 21-23-11E

Marion County

Youker et al	1-Halbeck	SE SW NE 10-17-4E

TEXAS

NORTH CENTRAL & EAST CENTRAL TEXAS

Brown County

Humble	15-Armstrong	Sec-1 Blk-789	Jaun Delgado
Love & Michel	2-Graham Ranch	Sec-1 Blk-137	Jeremiah Brown
Green et al	3-Riordan	Blk-353	C. B. Jennings

Callahan County

Humphries	1-Gary	Sec-40 Abst-1782	D&DA
Reiter-Foster	29-Hatchett	Sec-24	D&DA
Thompson et al	1-Jack Florek	Sec-125	BBB&CRR
Richards	2-Gilliland	Sec-131	BBB&C
Gibson & Johnson	1-Snyder	Sec-141	BBB&C
Gibson & Johnson	2-Snyder	Sec-142	BBB&C

Coleman County

Company	Well No. & Farm	Location	
Vacuum et al	1a-Weaver	Sec-10 Blk-271	Andrew Gabe
Whiteside	L-Keith	Blk-217	J. S. Martin
Stepp & Hiete	1-Shore	Sec-72 Blk-1	GH&H
Meredity & Barton & Cameron	1-Singletary	Sec-5 Blk-628	S. B. Nixon

Eastland County

Hopkins	2-Jones	Sec-43 Blk-4	H&TC
Teotsorth	1-Harbin	Sec-9 Blk-4	H&TC
Belva	7-Goode	.....	Stubblefield
T P C O & O	5-Higginbotham	Sec-53 Blk-4	H&TC

Fall County

Yost et al	1-Pamplin	.....	SarahPillow

Jones County

Texas	2-Camp	Sec-13 Blk-19	T&P
Texas	6-Carter	Sec-13 Blk-19	T & P
Wells et al	1-Britton	Sec-355	Austin & Williams
Humble	1-Bickley	Sec-50 Blk-18	T&P

McCullough County

Hartshell et al	1-Stulhammer	Blk-160	Stulhammer

Milam County

Michalk & Clark	1-Johnson	.....	Acosta

Navarro County

Perryman et al	1-Prince	.....	Phifer

Shackelford County

Dull & Earle	6-Mathes	Sec-32	ETRR
Grishma & Hunter	2-Davis	Sec-17 Blk-13	T & P
Hudhes et al	1-Huber	Sec-593	T E & L
Loggie et al	1-Mathews	Sec-1	ETRR
Roeser & Pendleton	88A60-Cook	Sec-60	ETRR
Moncrief et al	1-Gustaffson	Sec-169	BBB&C
Midland	1-Davis	Sec-20 Blk-13	T & P
Skelly	4-Mathews	Sec-32	ETRR
Shulman et al	1-Mathews	Sec-57	ETRR
Roeser & Pendleton	2A88-Cook	Sec-88	ETRR
Roeser & Pendleton	11A83-Cook	Sec-83m	ETRR

NORTH TEXAS

Archer County

Nicholson	1B-Hudson	Abst. 644	Thomas Toby
Long	1-Tabor	Blk-9	Dallas Co. Sch. Land
Bridwell et al	2-Hamilton	Blk-6 Abst. 266	BBB&CRR
Texas	3-Parkey	Sec-1	ATNCL
Pet. Prod. et al	1B-Kunkel	Abst. 51	BBB&CRR
Shell	3C-Abercrombie & Taylor	Blk-41	Harris sub.

Cooke County

Benson Bros.	1-Gibson	Abst. 279	Ed. A Clubb
Kewanee	B3-Hyman	Abst. 363	ETRR
Texas	7-Dennis	.....	Hutchinson
Texas	6-Dennis	Abst. 484	Hutchinson
Shell	5-Dennis	Abst. 484	Hutchinson

Montague County

Roberts et al	1-Grimes	Blk-23	L. Rainey

Wichita County

Atlantic et al	1-Barton	Abst. 258	Spillers
Hines	1A-Burnett	Sec-6 Abst. 464	Meade
Robertson	1-Waggoner	Blk-3 Abst. 548	Willis
Hill & Blair	1-Fasselt & Tuttle	Sec-2 Abst. 769	CTRR
Howell	1-Allen & Foster	Sec-1 Abst. 129	H&TB
Hunter	1-Waggoner	Blk-1	George
Caldwell	11-Kemp & Allen	Sec-26 Blk-10	KWVFL
Hines & Humble	1-Waggoner	Abst. 547	Willis

Young County

Hedrick & Camp	1-Jones	Sec-60	TE&L
Bradstreet	7-Snider	.....	Wilson
Brashear & Peacock	1-Gregg	Blk-17	YCSL
Stafford et al	1-Melton	Abst. 274	Tynes
Walton et al	3-Prideaux	Abst. 274	Tynes
Cunningham	1-Edwards	Abst. 274	Tynes
Bradstreet	6-Snider	.....	Wilson

PANHANDLE

Gray County

Independent	1-Hollenbeck	Sec-176 Blk-3	I&GN
Texas	1-Faulkner	Sec-29 Blk-B-2	H&GN

WEST TEXAS

Crockett County

Eppernour et al	1-Noelke	Sec-60	Mullens
Anderson & Williams	1-University	Sec-19 Blk-47	University

Howard County

Comet	3-Clay	Sec-154 Blk-29	W&NW
Plymouth	2-Abrams	Sec-5 Blk-32	T & P
Plymouth	3-Abrams	Sec-5 Blk-32	T & P

Pecos County

Evans	1-Pecos Valley	Sec-36 Blk-3	H&TC
Imperial	1-Pecos Valley	Sec-22 Blk-10	H&GN
Atlantic	1-Trees	Sec-108 Blk-8	H&GN
Bell	1-Gray	Sec-593	GC&SF
Black et al	1-Pecos Valley	Sec-22 Blk-10	H&GN

Ward County

J. H. L.	2-Hazlett	Sec-17 Blk-5	H&TC

Winkler County

Atlantic	5B-Hendricks	Sec-44 Blk-26	PSL
McGinley	1-Bashoma	Sec-17 Blk-B3	PSL

Completions in Texas, Week Ended March 23, 1929

NORTH CENTRAL & EAST CENTRAL TEXAS

Brown County

Company	Well Farm	Survey	Sec. & Blk.	Depth	Init. Prod.
Van Max	23-Hickman	Benson	Blk-783	1243-1268	12
Humble	14-Armstrong	Delgado	Sec-1 Blk-789	1202-1220	135
Green et al	2-Riordan	Jennings	Sec-353	1170-1172	10
Young Bros., Alexander & Woodley	9-Armstrong	Curlong	Blk-151	1220	Dry
Young Bros., Alexander & Woodley	22-Hickman	Benson	Blk-783	1270	Dry
Spinney et al	1-McCulley	Thom	Sec-53	Location abandoned	
Highes et al	1-Dunn	Delgado	Sec-10	2200	Dry
Phillips	2-DeBusk	Bell	Blk-648	1505	Dry
Love & Michel	1-Graham	Brown	Blk-137	1730	Dry
Culbertson Bros.	1-Smoot	Scott		1207	Dry
Cranfill & Reynolds	1-Williams	Rushing		2148	Dry
Bradstreet et al	1-Reaves	Belknap	Blk-633	1401	Dry

Callahan County

Reiter-Foster	21-Hatchett	D & DA	Sec-24	326-336	30
Gibson & Johnson	3-Finley	BOAL	Sec-68	604	Dry
Warren Hays	7B-Hearn Est.	BBB&CRR	Sec-129	Location Aband.	
Texas	24-Hatchett	D & DA	Sec-24	375	Dry
Texas	20-Hatchett	D & DA	Sec-24	435	Dry
Howell et al	1-Osburn	SPRR	Sec-18 Blk-5	804	Dry
Gibson & Johnson	2-Finley	BOAL	Sec-68	632	Dry

Coleman County

Simms	1-Moore	White	Sec-13 Blk-161	359-370	.865M
Ilsing	2-Eddington	Victoria Co. Sch. Ld.	Sec-28 Blk-187	1127-1129	1.85M
Vacuum et al	2-Weaver	Gavel	Sec-16 Blk-271	1813.5-1826	314
Strong et al	1-Clark	Caldwell Co. Sch. Ld.	Sec-81 Blk-248	....	Dry
Shell	1-Newsome	Cochran	Blk-269	2001	Dry

Commanche County

Carter et al	1-Reed	HTC	Sec-56 Blk-2	1506-1523	.175M

Erath County

Wickens et al	1-Smith	Stubblefield		3309-3328	3.5M

Eastland County

Edwards	1-Gibson	H&TC	Sec-24 Blk-4	1692	Dry
Texas Pacific	4-Higginbotham	H&TC	Sec-53 Blk-4	Location Aband.	
Barkley & Crotley	.....	Weeks		1304	Dry

Shackelford County

Roeser & Pend.	36A61-Cook	ETRR	Sec-61	1254-1277	40
Roeser & Pend.	36A61-Cook	ETRR	Sec-61	1224-1226	50
Roeser & Pend.	9A83-Cook	ETRR	Sec-83	1390-1396	60
Tannehill	11-Mathews	ETRR	Sec-50	990-1002	3
Roeser-Pendleton	1-Mathes	ETRR	Sec-56	1260	Dry
Tennant et al	2-Mathews	ETRR	Sec-56	1194	Dry
Cranfill & Reyn	1-Flippen	T & P	Sec 34 Blk-11	995	Dry

Stephens County

Arab & Beatty	1-Liedbeter	T & P	Sec-84	3730-4060	.5M
Lone Star	1-Elliott	TE&L	Sec-2952	Location abandoned	

NORTH TEXAS

Archer County

Lea & Daniels	4-Williams	Hand	Abst. 182	572-579	40
Lewis	1-McCarty	Chisholm		1504	Dry
Gilliland et al	1-Dupriest	TE&L	Sec-2489	1481	Dry
Harris et al	3-Roller Est.	Winters		1318	Dry
Freeman & Grebin	1-Haralson	Meade Pasture	Blk-19	1450	Dry
Wolfe & Son	1-Nitschke	DCSL	League 4 Blk-27	778	Dry

Company	Well Farm	Survey	Sec. & Blk.	Depth	Init. Prod.
United Producers	1-Kovar	Meade Pasture	Blk-53	1506	Dry
Stumpf & Co	1-Young & Longford	Harris Sub	Blk-135	1453	Dry
Pandem	1-Richardson	TE&L	Sec-2425	1465	Dry
M & V	1-Falls Co.	Falls Co. Sch. Ld.	Blk-61	1201	Dry

Cooke County

Kewanee	B2-Hymah	ETRR	Abst-363	1072-1231	82
Kewanee	7-Hymah	ETRR	Abst.-363	1297-1529	152
Texas	5-Dennis	Hutchinson	Abst.-484	1217-1229	620
Shell	3-Dennis	Hutchinson		1219-1220	771

Cottle County

Shelby	1-Cannon	Knott	Sec-15	4043	Dry

Montague County

Beckner et al	1-Phillips	Crabtree		2140	Dry

Wilbarger County

Phillips	R2-Wag.	H&TC	Sec-44 Blk-4	2314-2400	12
Phillips	N1-Waggoner	H&TC	Sec-43 Blk-4	2287-2373	12
Shaw	E4-Waggoner	H&TC	Sec-18 Blk-4	2413-2425	65
Easter	B2-Waggoner	MEP&PRR	Sec-39	1926-1932	240
Apple & Brandenberry	1-Waggoner	H & T C	Sec-32 Blk-4	2294-2313	75
Kolp	G2-Waggoner	H & T C	Sec-18 Blk-4	2422-2435	80
Kolp	G1-Waggoner	H & T C	Sec-18 Blk-4	2409-2435	325
Phillips	BBB3-Wag.	H & T C	Sec-5 Blk-5	1910-1911	12

Wichita County

Producers	2-Allen & Kemp	KWVFL	Sec-26 Blk-11	1630-1646	20
Humble	15-Taylor	KWVFL	Blk-81	1477-1488	40
Fisher	6-Fee	Collins	Sec-24	1601-1609	30
Riner & Bailey et al.	1-Michie	Netherly		1778-1784	125

Young County

Robertson	2-Gilmore	YCSL	Blk-14	580-586	50
Pennell et al	1-Calvin	Rohus		562-567	55
Maycamp	2-Prideaux	Rohus		563-569	10
Magnolia	5-Johnson	Sergeant	Blk-13	595-600	5
Bratcher	2-Prideaux	Tynes		469-485	30
Bratcher	1-Prideaux	Tynes		446-461	35
Bratcher	2-Edwards	Tynes		434-461	55
Bratcher	1-Edwards	Tynes		437-456	40
Bradstreet	3-Snider	Wilson		563-569	30
Goldsmith	1-Bishop	TE&L	Sec-162	1007	Dry

PANHANDLE

Hutchinson County

Amarillo	1-Jameson	Duoic		3151-3230	12
Phillips	1-Frigg	Trigg		3025-3040	120

WEST TEXAS

Crane County

Duffey	4-Cowden	CCSDRGNG	Sec-18 Blk-4	2395-2432	100
Gulf	58-McElroy	CCSDRGNG	Sec-200 Blk-F	2765-2870	90 (9 Hrs.)
Marland	2A-Cowden	CCSD&RGNG	Sec-81 Blk-X	2360-2385	25
Hughes & Evans	1-State Bk. Comm.	H & TC	Sec-23 Blk-4	3651	Dry

Pecos County

California	1-Smith	TCRR	Sec-15 Blk-194	1690	Dry
California	1-Smith	TCRR	Sec-16 Blk-194	2078	Dry
California	7-Smith	TCRR	Sec-23 Blk-194	1710-1867	115

Terry County

Goldsmith	1-Bishop	TE&L	Sec-162	1007	Dry

Completions in North Louisiana and Arkansas, Week Ended March 14, 1929

(Received too late for publication in March 20 issue)

Louisiana—DeSoto Parish

Company	Well	Location	Depth	Yield
Magnolia Pet. Co	Fortson No. 3	4-12-11	748	2M gas

Caddo Parish—Pine Island

Dixie Oil Co	Huckaby No. 4	11-21-15	4037	dry, aband.

Morehouse Parish

Nat. Gas Prod. Co.	Crossett Lbr. Co. No. 23	26-21-4E	2190	10M gas

Ouachita Parish

Southern Carbon Co.	Fairbanks No. 11	33-20-4E	2140	8M gas.

East Texas—Panola County

Company	Well	Location	Depth	Yield
Texas Company	Adams B-10	Co-Ord F-16	2672	6M gas

Arkansas—Ouachita County

Charles McDonald	Wilson No. 1	25-15-18	2865	250 bbls.
Shell Pet. Corp	Snyder No. 4	34-15-15	1973	40 bbls.

Union County—Rainbow City

Magnolia Pet. Co	W. K. Gregory No. 2	15-17-14	2828	35 bbls.
Ohio Oil Co	Raulston No. 1	12-17-14	3037	4500 bbls.

Completions in North Louisiana and Arkansas, Week Ended March 21, 1929

Louisiana—Caddo Parish—Waskom

Company	Well	Location	Depth	Yield
Lorraine Syndicate	J. M. Bryson D-1	18-17-16	2350	2M ft. gas

DoSota Parish—Logansport

DeSoto Syndicate	Holmes No. 1	20-13-16	1501	dry, aband.
DeSoto Syndicate	Williams No. 1	29-13-16	925	dry, aband.

LaSalle Parish—Urania

Ark. Fuel Oil Co	Urania B-10	17-10-2E	1500	75 bbls.

Red River Parish—Naborton

Odell & Lawton	Richardson No. 5	25-13-11	2560	10 bbls.

Ouachita Parish—Monroe

Imperial O. & G. Co.	Stubbs No. 6	14-19-3E	2200	2M ft. gas
Pipes & Mack	McGee No. 1	10-18-4E	2186	6M ft. gas

Company	Well	Location	Depth	Yield
United Carbon Co.	Spade No. 1	32-19-4E	2185	4M ft. gas
Magnolia Pet. Co	U. S. Government No. 1	18-19-5E	2265	3M ft. gas

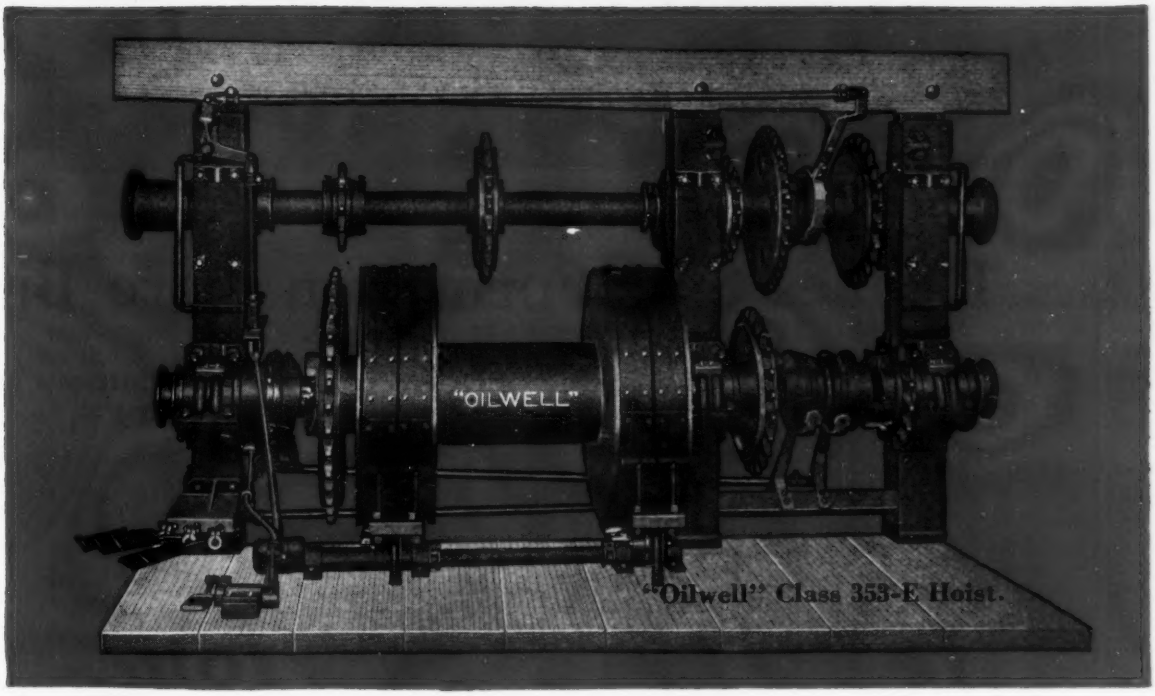
East Texas—Harrison County—Waskom

C. H. Lyons et al	Bryson A-2	E. Pollock HRS	2406	4M ft. gas
C. H. Lyons et al	Rudd-Hudspeth No. 1	Bedford HRS	2404	1M ft. gas

Arkansas—Rainbow City

Magnolia Pet. Co	W. K. Gregory No. 3	15-17-14	2855	125 bbls.
Ohio Oil Co	L. S. Adams No. 1	7-17-13	3212	dry, aband.

A POWERFUL HOIST AND FAST



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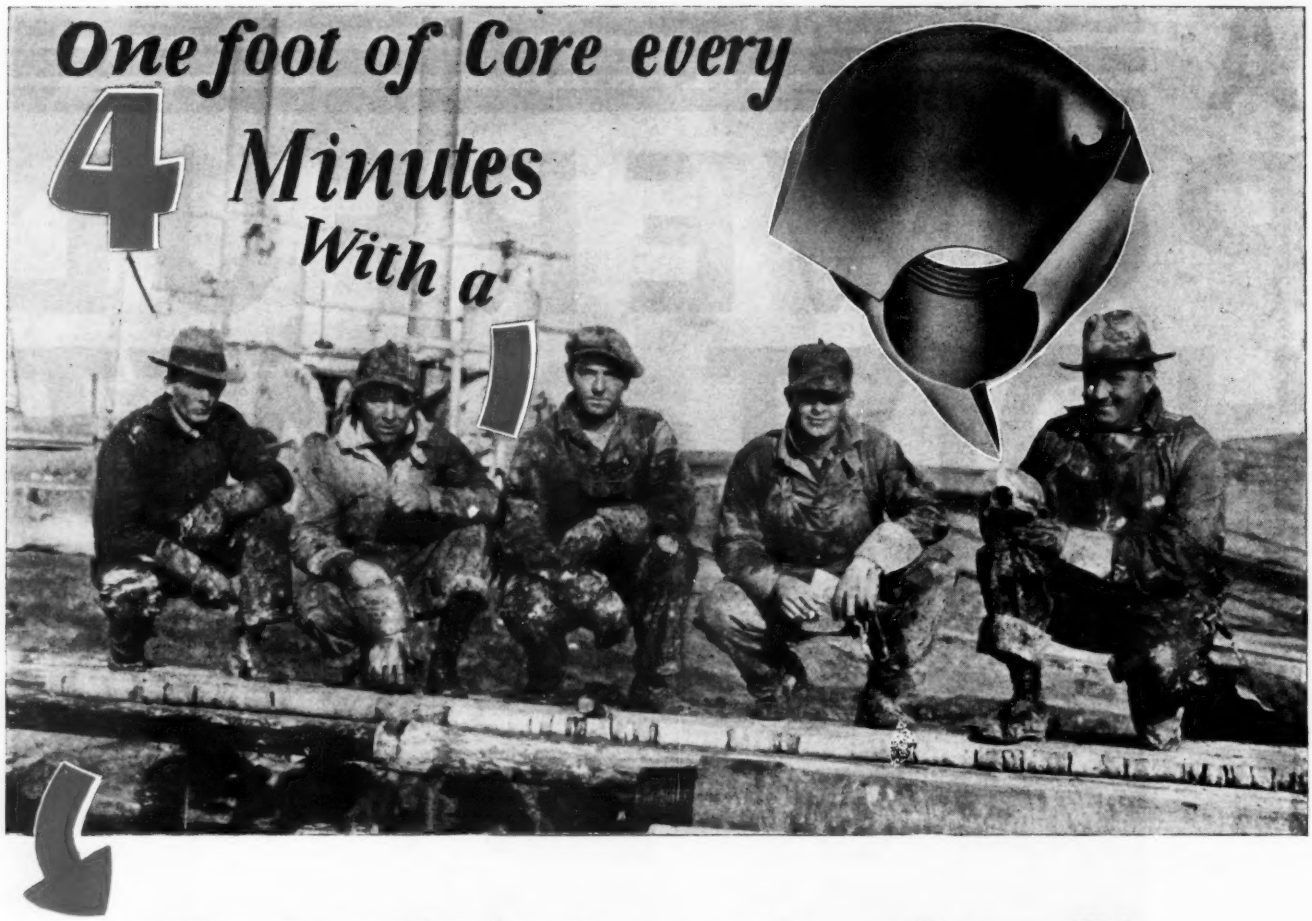

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A 12 ft. core was taken in 48 minutes. Core recovery was 100% and the cutter head was in excellent shape for making more hole after making this core.

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Oil Field Emulsions

Fundamental Physical Nature Of Oil-Water Emulsions

Article One

By Lester C. Uren

Professor of Petroleum Engineering, University of California, Berkeley, Calif.

AMONG the operating problems confronting the oil producer in many oil fields, none have proven more difficult of satisfactory solution than that of separating the large quantity of water that is necessarily produced from the wells with the oil. Dehydration of crude petroleum has been particularly troublesome and costly when the water is thoroughly emulsified with the oil so that the two fluids do not readily separate.

The oil producer's difficulty in contending with this problem, has been largely due to his lack of understanding of the physical nature of the oil-water mixtures that are formed and of the conditions giving rise to their formation. In some cases, he has been led to install costly dehydrating processes and equipment when a simpler solution could have been found in slight modification of his well operation practice. In other instances, a more complete understanding of the problem might have led to the adoption of a less costly process of dehydration.

During recent years, scientific investigations have resulted in important contributions to our knowledge of the properties of oil-water emulsions. Much of this new data has apparently not been brought directly to the attention of the oil producer: at least, not in a way that would suggest a means of applying it to his immediate problems.

With the purpose of reviewing the literature of this field, of analyzing the results of recent technical studies of the petroleum emulsion problem, and of presenting conclusions which, it is hoped, may improve the reader's understanding of the nature of petroleum emulsions, of means for preventing their formation in production practice, and of economically dehydrating them if and when formed, the writer has prepared a series of three articles, of which this is the first.

The present article will review what is known of the fundamental physical nature of oil-water emulsions and of the conditions which promote emulsification. The second article will discuss the manner of formation of emulsions in oil-field production practice, and will also suggest means by which their formation might be prevented or minimized. The third and concluding article of this series, will discuss modern dehydration practice as exemplified by methods, processes and equipment used on the better managed oil-producing properties.

Physical Character of Oil-Water Emulsions

Water and petroleum are ordinarily immiscible and are soluble in each other only to a very slight extent. When a pure paraffin oil is placed

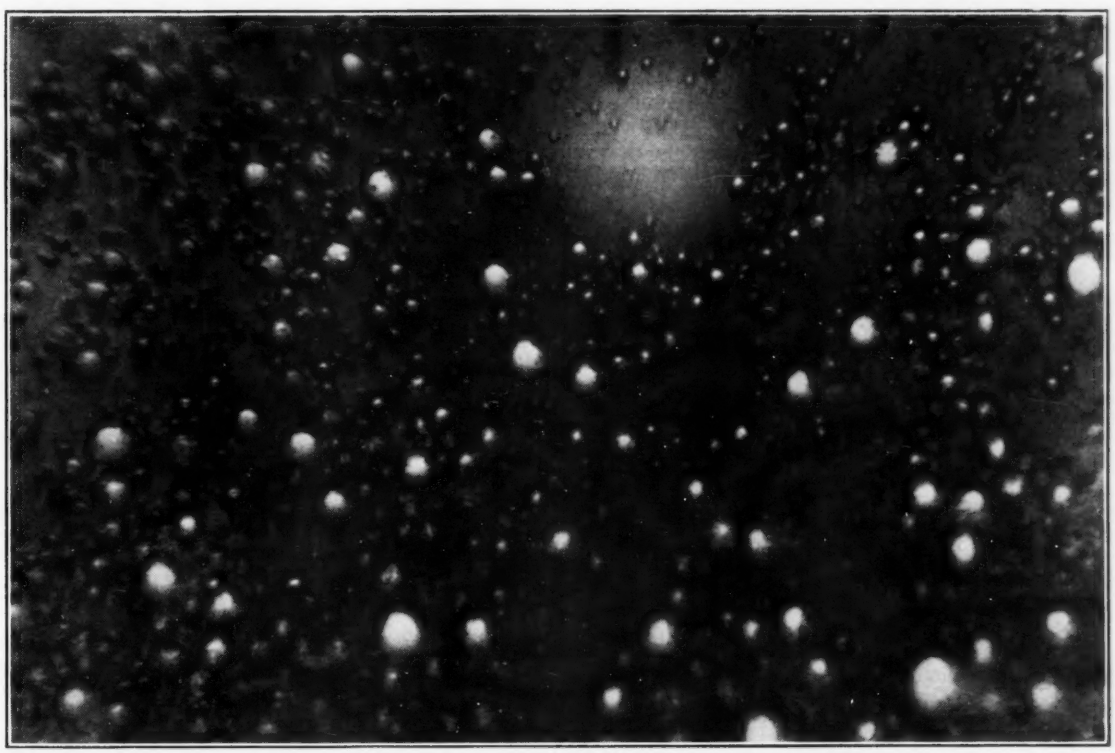

Fig. 1—Photo-micrograph of crude petroleum emulsion from the Huntington Beach field, California. (Magnification, 800 X) Photo by M. Abozeid

in a closed container with distilled water and the two liquids are agitated, a certain admixture occurs due to particles of each liquid becoming separated and distributed among particles of the other.

This is purely a mechanical admixture however, and if the container is allowed to stand at rest for a time, the two liquids quickly separate, the particles of oil again uniting to form a continuous layer floating on top of the water. No permanent emulsification of the two fluids occurs.

IF CERTAIN other types of oils are used however, or if certain impurities are present either in the oil or in the water, and the two fluids are agitated together, a part of the water will separate from the oil as before, but a portion of the oil and water may remain in permanent admixture, floating as a liquid of intermediate density between the water layer in the bottom of the container and the less dense layer of oil floating above.

Emulsion, as this permanent admixture of oil and water is called, develops physical properties radically different from those of either of its component liquids, particularly in color, viscosity and density. It differs also, of course, in being a heterogeneous mixture instead of a homogeneous fluid of uniform properties and constitution.

Close inspection of oil-water emulsions show that they consist essentially of minute globules of one liquid suspended in a continuous mass of the other; and curiously, in different emulsions, we may have either the oil or the water as the continuous or external phase. That is, there is one type of emulsion which consists of small globules of water floating in a continuous body of oil, and another type consisting of small globules of oil floating in a continuous body of water.

Naturally occurring petroleum emulsions are always of the water-in-oil type, in which the oil constitutes the external phase; but laboratory investigation has shown that it is easily possible to prepare oil-water emulsions of the opposite type in which the water constitutes the external phase.

Microscopic studies of oil-field emulsions have shown that the water globules are of variable size, ranging from particles as small as one one-hundred-thousandth of a millimeter in diameter, up to globules several millimeters in diameter. It is probable however, that the larger water globules are mechanically suspended due to the generally high viscosity of such emulsions.

Petroleum emulsions display considerable variation in stability, some of the water often showing a tendency to settle out; while in other cases, the water is practically in permanent suspension. Apparently the size of the water globules and their dispersion or distance apart, has much to do in determining the stability of the mixture.

Emulsions containing large and comparatively few water globules show a greater tendency to separate than others in which the water droplets are more numerous and smaller in size. Apparently too, for a given oil and water, there is a certain relationship that exists between the ratio of water to oil in the more permanent emulsions, greater or lesser amounts of water tending to form less permanent emulsions. Figure 1, reproduced from a photo-micrograph of a typical oil-field emulsion, illustrates characteristic variation in size and distribution of the water globules.

The minute globules of water suspended in the oil mass, as observed under the microscope, seem to move about freely in the oil mass, but show a very definite reluctance to coalesce when brought together, being seemingly possessed of an elastic enclosing film of oily material which can be ruptured only with great difficulty. If forced together and mechanically distorted, the water globules show a tendency to break up into still smaller particles rather than coalesce.

Colloidal Properties of Emulsions

Explanations of the apparent anomaly of two practically immiscible, liquids, one having a density materially greater than the other, attaining a condition of intimate and permanent emulsification, have called forth many theories. More recent explanations have been based upon the principles of colloidal chemistry, with which the whole subject of emulsification is now considered to be intimately related.

Dispersed particles of foreign materials held in permanent suspension in liquids are called "colloids." Such particles apparently follow peculiar physical laws which result in behavior quite unlike that of other substances which lack colloidal properties. Clay is a well known colloidal substance, some clays remaining in practically permanent suspension in water after agitation to secure sufficient dispersion of the clay particles.

Some mud fluids used in rotary drilling furnish excellent examples of colloidal suspension of clay in water, the clay remaining in suspension in the liquid for long periods of time with but little tendency to settle out. Minute water globules in an oil-water emulsion are thought to be influenced by the same physical laws as those controlling the suspension of clay in water.

Inspection of colloidal mixtures under the ultra-microscope, has shown that the finely divided colloidal particles are in continual motion, frequently colliding with each other so that they never come to rest. This is the so-called "Brownian movement"[1] which is theoretically explained as due to bombardment of the solid particles by molecules of the surrounding liquid, the force being apparently sufficient when the solid particles are of very small size, to off-set the action of gravity which tends to cause them to settle out.

The Brownian movement in oil-field emulsions is not ordinarily apparent under the microscope, possibly because of the high viscosity of such mixtures, but it may at times be observed on diluting with various oil solvents which operate to reduce the viscosity.

In the case of most oil field emulsions, it is perhaps questionable whether the water globules attain dimensions sufficiently small to render them susceptible to this action, and most authorities have looked to other properties of emulsions for a more reasonable explanation of their permanence.

Influence of Surface Tension on Emulsification

A group of early investigators ascribed the peculiar properties of emulsions to phenomena of surface tension. It is quite possible to explain the occlusion of a globule of one liquid within that of another, on the basis of an interfacial tension relationship which causes one of the two liquids to assume a convex form leading, in the case of liquids, to globules of spherical or obloidal form.

WE MAY satisfactorily explain the spherical form of globules of water in oil on the theory that the superior surface tension of water compels it to present the smallest possible surface to the oil, and this is necessarily the spherical form. The interfacial tension between oil and pure water is such that the oil ordinarily tends to spread itself as a thin film over the surface of the water, but if the interfacial tension be sufficiently reduced by the addition of certain soluble salts to the water—such as sodium carbonate, alum or sodium oleate—emulsions are much more readily formed. Soluble chlorides or other substances in the water phase, which tend to raise the interfacial tension, on the other hand, make emulsification more difficult.

High viscosity of the oil is possibly a contributing factor in emulsification. The more viscous oils are found to emulsify more readily and permanently than those less viscous. Investigation has shown however,

1. Clayton, W., "The Modern Conception of Emulsion," Journal Soc. Chem. Ind., Vol. 38. May, 1919, pp. 113T-118T.

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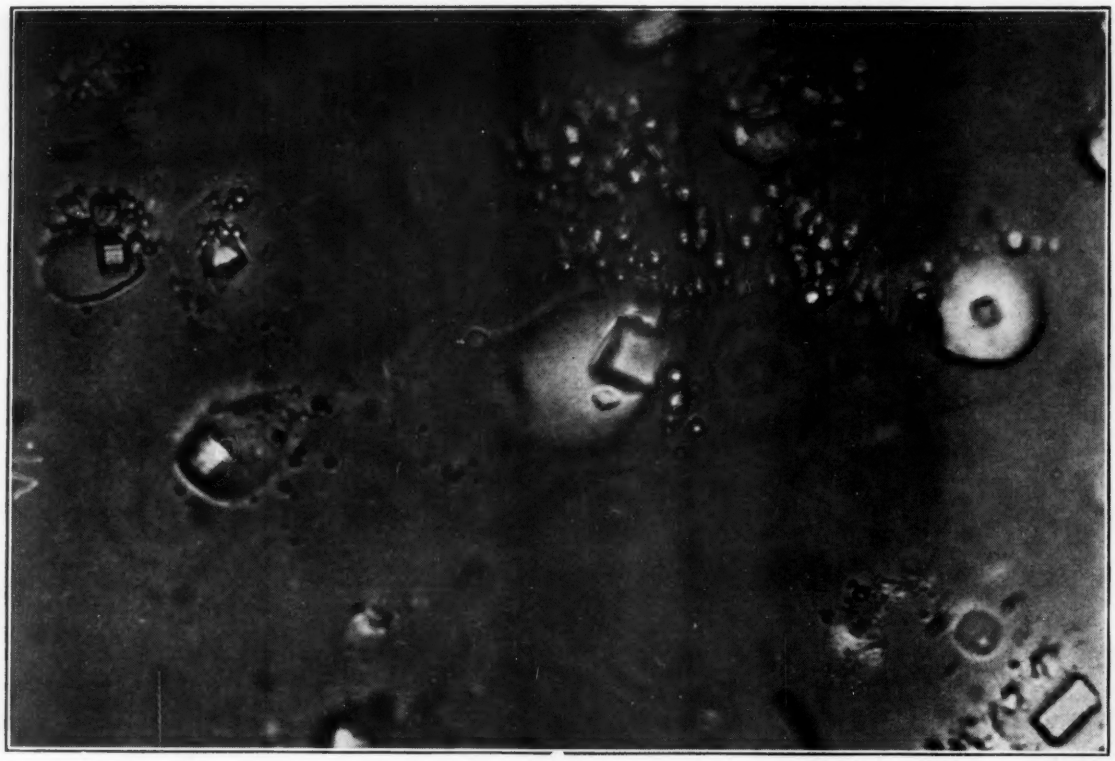

Fig. 2—Photo-micrograph of crude petroleum emulsion from the Sunset field, California, showing crystalline occlusions. (Magnification, 800 X) Photo by M. Abozeid

that though favorable to permanence of emulsions, high viscosity is in reality but a minor factor in their formation.[2]

While the laws of surface tension thus assist in explaining some of the phenomena of emulsification, they are not in themselves, sufficient to explain the permanence of petroleum emulsions; for if interfacial tension were the only force operative, there would be no reason why particles of the dispersed or internal phase or component of the emulsion would not coalesce on contact with each other. As has already been stated however, it is one of the striking properties of petroleum emulsions that the dispersed water droplets can be caused to coalesce only with great difficulty when brought into contact with each other. Apparently there is some additional force or forces operative, which prevent coalescence and largely determine the stability of the emulsion.

Emulsifying "Agents" and Their Influence

Modern theories now generally accepted, explain this unwillingness of the dispersed material to coalesce, as due to a coating of some third substance termed the "emulsifying agent"—minute particles of which accumulate and are retained at the interface between the two liquids, by operation of a physical process known as "adsorption."

The emulsifying agent may be either a finely divided colloidal substance insoluble in oil or water, or it may be a substance soluble in either the oil or the water, forming a "colloidal solution." There is some evidence that the emulsifying agent must be a substance mutually attracted to both the oil and the water. We may thus picture the molecules of the emulsifying agent as having one end "rooted" in the oil and the other in the water, possibly held in this position by ionic electric charges.

EXPERIMENTS have shown that finely divided solid substances, such as clay or freshly precipitated metallic salts, promote emulsification. A significant fact is found in the results of tests showing that the liquid which preferentially wets the emulsifying agent will invariably be the continuous or external phase. For example, clean, dry, finely-divided clay or silica are wet more readily by water than by oil and form oil-in-water emulsions; while carbon black or oil-saturated clay are more readily wet by oil than by water, and form water-in-oil emulsions.

In the same way, when soluble emulsifying agents are used, the liquid in which the emulsifying agent is soluble will become the external phase. Sodium soaps, for example, are very soluble in water but less so in oil, and form an oil-in-water emulsion. Calcium soaps or asphaltic substances on the other hand, are soluble in oil but not in water, and form water-in-oil emulsions.[3]

Not all soluble substances necessarily form colloidal solutions, but in some cases a second solute acts as a "flocculating agent," forcing the emulsifying agent to the surface or interface between the two liquids, and increasing the colloidal tendency. Sodium chloride for example, dissolved in water containing colloidal hydrous ferric oxide, greatly increases the colloidal properties of the ferric oxide, though an excess of chloride will have the reverse effect, tending to cause agglomeration of the emulsifying agent.

Intimate studies of crude petroleum emulsions corroborate the theory outlined above, the evidence indicating that substances of the nature of asphalt in the oil are generally the active emulsifying agents.[4] Being identified with the oil, it becomes the external or continuous phase, thus explaining why such emulsions are invariably of the water-in-oil type.

Dodd found that stable emulsions of

2. Hillyer, Journal, American Chemical Society, Vol. 25 (1903), pp. 511-531.

3. For further details on emulsifying agents and their influence on the type of emulsion formed, see:
Pickering, Journal, Chemical Society (London), Vol. 91 (1907), p. 2010.
Briggs, T. R., Journal Ind. & Eng. Chemistry, Vol. 13, Nov., 1921, p. 1008.
Bancroft, W. D., "Applied Colloid Chemistry" (a book), 1921, 345 pages.
Holmes and Cameron, Journal American Chemical Society, Vol. 44 (1922), pp. 66-74.
Clowes, G. H. A., Proceedings Soc. Exp. Biol. & Med., Vol. 11, 1913, pp. 1-3.

4. Dodd, H. V., "The Resolution of Petroleum Emulsions," Chemical and Metallurgical Engineering, Vol. 28, Feb. 7, 1923, pp. 249-253.

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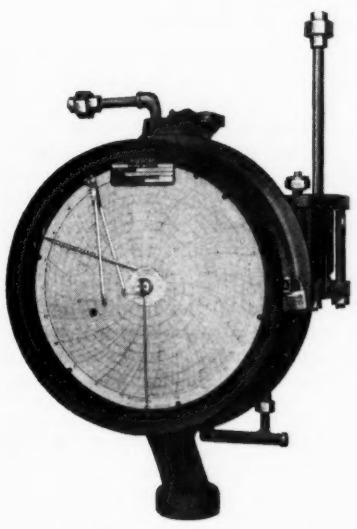

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benzine and distilled water could be formed by the addition of a small amount of asphalt, and the amount of emulsion formed increased as the percentage of asphalt was increased. Inspection of the emulsion thus formed disclosed the asphaltic material concentrated at the interface between the oil and the water globules. The separating film thus formed, was found to be tough, elastic, and practically insoluble in the oil.

Dow and Resitle[5] made studies of the colloidal material in various petroleum emulsions. Some were found to contain from 1 to 2 per cent or more of finely divided organic material, appearing after ignition as silica and oxides of iron, calcium and magnesium. This material was shown to have colloidal properties by using it to emulsify kerosene and water.

Further tests indicate that most emulsions contained colloidal asphaltic material which could be removed by filtration, the filtered oil subsequently showing no tendency to emulsify. Abozeid finds only negligible amounts of inorganic material in California emulsions, emulsification being primarily due to concentration of apparently solid hydrocarbons about the water globules.[6]

Water in Petroleum Emulsions Often Highly Saline

Analyses of the waters in various typical oil-field emulsions have indicated that they are generally highly saline, occasionally becoming saturated; possibly as a result of evaporation of some of the water by natural gas in the well or in the sands, before emulsification of the residue occurs. In California emulsions, the chloride concentration of the emulsified water is often as high as half normal.

Abozeid, who has made detailed microscopic studies of various California oil-field emulsions, reports that salt crystals are often to be observed suspended in the water globules.[6] The photo-micrograph reproduced in Figure 2 illustrates such an occurence. Doubtless the dissolved salts within the water phase have an important influence on the interfacial tension developed between the two liquids and between them and the mulsifying agent at the interface.

5. Dow, D. B., and Reistle, C. E., Jr., "Physical Chemistry of Oil-Field Emulsions," U. S. Bureau of Mines Reports of Investigations Series No. 2692, June, 1925. See also, U. S. Bureau of Mines Bulletin 250.
6. Abozeid, M., "A Study of California Oil-Field Emulsions," a thesis for the Master of Science Degree, conducted under the supervision of the Author, University of California, 1926. (Unpublished manuscript).

Influence of Water Content on Stability of Emulsions

McCoy, Shidel and Trager[7] find that stable emulsions contain an approximately constant percentage of water: about two parts of water combining with one of oil. Johnson[8] however, using a 25° crude from the Sunset Field of California, was able to prepare stable emulsions with water ranging from a trace to as much as 80 per cent. He found, however, that emulsions containing more than 75 per cent of water had a tendency to settle out free water on standing.

Dow,[9] who also conducted laboratory tests to determine the influence of water and oil concentration, finds that emulsification occurs over a wide range of mixtures, but that for a given oil, maximum emulsibility is attained at some definite ratio of water to oil. For one oil on which tests were made, it was found that maximum emulsibility was attained when the fluid mixture contained about 60 per cent of water.

Morris[10] reports the results of centrifuge tests on a group of California oil-field emulsions, showing water content ranging from 1 per cent to as much as 49 per cent. (See Table 1.) A part of the water in each sample was found to be comparatively free, so that it could be separated from the emulsion by simple centrifuging after dilution with gasoline and carbon bisulphide. The total water content of each sample, as reported in Table I, was determined by adding a little phenol to the sample to resolve the emulsion, and then centrifuging.[11]

Influence of Oil Properties on Stability of Emulsion

Dow[9] has conducted tests on crude petroleum from many American oil fields, and notes a definite relationship between certain physical properties of the oils and their tendency to emulsify. Generally speaking, the naphthene-base crudes which contain asphaltic substances, emulsify readily, while the pure paraffin oils show little tendency to do so.

The tendency of the naphthene base oils to emulsify apparently increases with their viscosity and carbon residue. Oils of high Baume gravity,

7. McCoy, A. W., Shidel, H. R., and Trager, E. A., "Investigations Concerning Oil-Water Emulsion", Transactions, A. I. M. & M. E., Vol. 65, 1921, pp. 2049-2056.
8. Johnson, H. A., "An Investigation of Petroleum Emulsions," a thesis for the Master of Science Degree, conducted under the supervision of the Author, University of California, 1923. (Unpublished manuscript).
9. Dow, D. B., "Oil-Field Emulsions," U. S. Bureau of Mines Bulletin 250, 1926, 111-p.
10. Morris, M. W., "An Investigation of Oil-Field Emulsions," a thesis for the degree of Bachelor of Science, conducted under the supervision of the Author, University of California, 1926. (Unpublished manuscript).
11. Dod, H. V., "Determination of Water in Petroleum Emulsions," Summary of Operations California Oil Fields (California State Mining Bureau), Vol. 8, No. 5, Nov., 1922, pp. 5-7.

yielding high percentages of light distillates, emulsify less readily than the heavier, lower-grade oils, but this is possibly due to their lower viscosity. It seems probable, also, that the surface tension of the oil would be a significant factor, the oils of higher surface tension probably emulsifying more readily than those of comparatively low surface tension.

Role of Gas and Air

McCoy, Shidel and Trager report[7] as a result of experimentation, that the presence of air, gas or voids in the oil-water mixture is a necessary condition for emulsification. In support of this theory, the common association of gas bubbles with petroleum emulsions is cited. Johnson and Morris[10] corroborate this.

Morris found it difficult to form more than one or two per cent of emulsion in forcing oil and water through sand in the absence of air or gas; while simultaneous injection of air or gas to the sand, resulted in the formation of from 10 to 50 per cent of emulsion.

Johnson secured percentages equally high by drawing oil-water mixtures through sand with the aid of a vacuum pump. It seems probable that the higher percentages of emulsion formed under these conditions is due to a higher velocity of flow and more turbulent flow conditions, affording a better opportunity for intimate admixture of the two fluids.

Water Globules Electrically Charged

Sherrick,[12] Ellis[13] and others have shown that the water droplets in petroleum emulsions are electrically charged, and suggest that we may explain their reluctance to coalesce as due to electrical repulsion of bodies of like charge. When, under the influence of an electric current, the charge on the water droplets is neutralized, they readily coalesce. Ellis has measured the potential of the electrical charge, and finds it to be normally about 0.05-volt. The presence of alkalies in the water increases the charge, however, while acids diminish it; and the stability of the emulsion appears to increase as the charge increases, up to a maximum of about 0.3-volt.[14]

On subjecting various California oil-field emulsions to low-potential direct current, Abozeid[6] found that the water droplets invariably moved toward the negative electrode, and therefore concluded that the water droplets are positively charged. This conclusion, however, is contrary to the observation of Sherrick, who reports that the water globules of certain Texas oil-field emulsions are negatively charged.

It is possible to observe the influence of electricity on petroleum emulsions under the microscope, by preparing a special microscopic slide with two electric terminals attached to the upper side and set a small distance apart, with provision for discharging a direct current through a thin film of emulsion, from one terminal to the other.

If a moderate voltage is used, i. e., up to 6 or 8 volts, the water droplets may be observed to move through the oil mass, crowding about the negative terminal (or perhaps the positive in some cases?), where they gradually coalesce.

If high potential current is used, such as may be secured from a group of dry cells and an induction coil in the circuit, a somewhat different effect may be observed, the water droplets tending to align themselves in chains, forming a band connecting the two terminals. After alignment in this way, passage of high-potential current through the water channel thus established, appears to break the enclosing films on the water globules so that they coalesce. This effect may, however, be merely due to neutralization of the electric charge which the water droplets carry.

Summary

This, the first of a series of three articles discussing the manner of formation and methods of dehydrating oil-field emulsions, has been devoted to a review of the physical and chemical properties of petroleum emulsions and the conditions responsible for their formation and permanent character.

It has been shown that while there are two distinct types of oil-water emulsions, naturally occurring crude petroleum emulsions are invariably of the water-in-oil type. Evidence is offered tending to show that stable emulsions of oil and water may only be formed in the presence of a third substance, called the "emulsifying agent," and that in the case of petroleum emulsions, asphaltic substances present in the oil are in most cases responsible for emulsification, though in some instances, colloidal inorganic material is apparently the active agent.

The influence of water concentration, saline content of the water, physical and chemical properties of the oil, electric charge carried by the dispersed water globules and interfacial tension phenomena as contributing factors determining the stability of petroleum emulsions, are also discussed.

The second article of this series, discussing the ways in which petroleum emulsions are formed in the operation of producing wells, and suggesting means by which their formation may be minimized or even entirely avoided, will appear in an early issue of NATIONAL PETROLEUM NEWS.

Table I. Showing Gravity, Emulsion, Free and Total Water Content of Typical California Oil-Field Emulsions

Field	Gravity, Deg. Baume	Emulsion, per cent	Free water, per cent	Total water content, per cent
Coalinga	14.7	6.5	2.2	7.1
Elk Hills	15.7	9.2	3.6	11.8
Buena Vista Hills	25.7	0.8	0.8	1.0
McKittrick	10.1	28.0	12.2	32.0
Huntington Beach	18.0	36.0	0.8	28.0
Coyote Hills	24.3	3.8	0.8	1.6
Inglewood	14.0	34.2	10.0	40.2
Torrance	11.9	19.2	0.8	15.0
Sunset	12.2	54.0	2.0	45.2
Signal Hill	19.4	21.4	5.0	11.4
Casmalia	11.7	34.5	25.0	49.0

*Analyses by M. W. Morris.[10]

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NEW YORK—A handsome watch and chain was the parting gift of fellow workers to Harvey Rankin, familiarly known as the "Squire," upon his completion of 34 years of service with the Peoples Natural Gas Co., Standard of New Jersey subsidiary. Mr. Rankin retires at the age of 71.

Peter Frank was another old-timer who walked out of his job at the Baum Compressor Station at the age of 65, upon the completion of 43 years of work.

REHOBOTH, Palestine, March 22.—Dr. Boris Kazmann, who is experimenting with oil extraction from limeshales in Palestine, is now in the United States in connection with this work. He recently inspected the oil-shale retorting work of the Bureau of Mines at Washington.

12. Sherrick, S. L., "Emulsifying Agents in Oil-Field Emulsions," Journal, Ind. & Engineering Chemistry, Vol. 13, Nov., 1921, pp. 1010-1011.

13. Ellis, Zeitschrift fur Phys. Chem., Vol. 78, p. 352.

14. Powis, Zeitschrift fur Phys. Chem., Vol. 89, p. 91, 179.

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Mississippi-Alabama Coastal Plains Areas Again Tested for Oil

By Paul Wagner
N. P. N. STAFF WRITER

IN THIS article, the first of a new series, Mr. Wagner discusses a program of wildcatting operations undertaken in the Gulf Coastal Plains region east of the Mississippi river, in the states of Mississippi and Alabama.

His original series discussing oil possibilities of the general region was published in NATIONAL PETROLEUM NEWS, beginning in the Dec. 2, 1925 issue. The present group of articles will amplify Mississippi-Alabama wildcatting conditions in line with data then known and since disclosed, bringing developments down to date.—*Editor.*

WILDCATTING for oil in the Gulf Coastal Plains region east of the Mississippi river has taken a fresh hold, as indicated by the 24 tests now under way in various parts of Mississippi and Alabama.

Between 75 and 100 earlier tests were drilled in the two states without developing commercial petroleum, although considerable gas has been found in wells near Amory and Aberdeen, in Monroe county, Mississippi.

Present activity is taking wildcatters coastward from surface areas marked by the southern extension of the Appalachian uplift and into the region known geologically as the Mississippi embayment.

Structures under test in Lauderdale and Hinds-Madison-Rankin counties, Miss, near Meridian and Jackson respectively, are in the embayment; also the Hatchetigbee anticline, in Choctaw, Clarke and Washington counties, Alabama, classifies similarly as to geographical location.

Wildcatters operating in each of the three local areas mentioned hope that favorable surface geology will be found conformable in underground bedding, associated with source rocks capable of yielding oil.

Beds productive on the west side of the Mississippi embayment, in east Texas, north Louisiana and south Arkansas, are known to be in the subsurface of the Coastal Plains region of Mississippi and Alabama also.

Proper structural conditions for oil accumulation in association with source rocks are, therefore, the only vehicles necessary for production in the general region.

Bedding planes of the Mississippi-Alabama region include the Ripley formation, which conforms to the Nacatoch of north Louisiana and south Arkansas; the Eutaw, correlating with the Blossom of the last mentioned territory; and the Tuscaloosa, which is known as the Woodbine west of the Mississippi.

The Ripley, Eutaw and Woodbine formations, all of Cretaceous age, lie below the surface at Jackson, Miss., at the following approximate depths:

Formation	Depth (Feet)
Ripley	2500-3000
Eutaw	3500-4000
Tuscaloosa	3800-4300

Less data exists in the Meridian and Hatchetigbee areas, on which to predicate estimates of drilling depths to the formations mentioned. They should be found, however, at similar or lesser depths in both areas, depending on local conditions of structure and possible thinning of stratigraphic sections.

The present testing campaign promises to be more adequate than any attempted in the past. At least part of the wells now under way will be drilled deep enough to test formations heretofore not penetrated; and regardless of whether oil production results or not there will be disclosed valuable subsurface geological data to guide wildcatting of the future.

Only a half dozen, or so, tests of the past have penetrated to Cretaceous horizons in the two states. These had the disadvantage also of not being favorably located geologically. The few favorably located tests in the Mississippi-Alabama Coastal Plains region were not drilled deep enough to prove or disprove anything in terms of present day knowledge or exploratory practice.

The petroleum industry, therefore, will watch with interest the drilling of tests on the geological structures already mapped and which may be found in the future in Mississippi and Alabama.

For the moment, greatest attention will attach to three tests under way in the Hatchetigbee area of Alabama and one on the Jackson, Miss., structure.

The Jackson test, No. 1 Misterfeldt of the Lion Oil & Refining Co., in 2-4-1E, Rankin county, Miss., is otherwise described as located at the town of Plain, four miles southeast of Jackson, on a structure mapped by Oliver B. Hopkins for the United States Geological Survey in 1916. That structure, which extends into Madison and Rankin counties from Hinds, was described in detail in Bulletin 641-D of the U.S.G.A.

Nine other companies with leaseholds totaling approximately 150,000 acres hold "protection" in the Jackson area, namely: Ohio Oil Co., Pure Oil Co., Gulf Oil Corp., Amerada Petroleum Corp., Carter Oil Co., Arkansas Natural Gas Co., Atlantic Oil Producing Co., Root Refineries, Inc., and the Standard Oil Co. of Louisiana.

The Lion Oil & Refining Co. controls thousands of acres originally assembled by the Love Brothers of Shreveport and afterwards turned to Ganzel and others before acquisition by the Lion. The Gulf interests, which have been working geophysical intruments in the general area, hold more than 44,000 acres in Hinds, Madison and Rankin counties. Carter Oil Co., subsidiary of Standard of New Jersey, and others, have held Jackson area leases for years.

IN LAUDERDALE county, north of Meridian, the only present test is that of Gowens and others on the Houser tract, in 33-8-18E, for which derrick is up. The test is in an area where the Hatchetigbee lignitic formations of the Wilcox group are found at the surface, south of the outcrop of the Holly Springs sand. Beds of the Upper Cretaceous and Upper Devonian and Mississipian underlie.

The Meridian area is north-northwest of the Hatchetigbee structure of Choctaw, Clarke and Washington counties, Alabama. In the last mentioned area, a number of tests have been drilled over a period of more than 20 years. All, however, were either too

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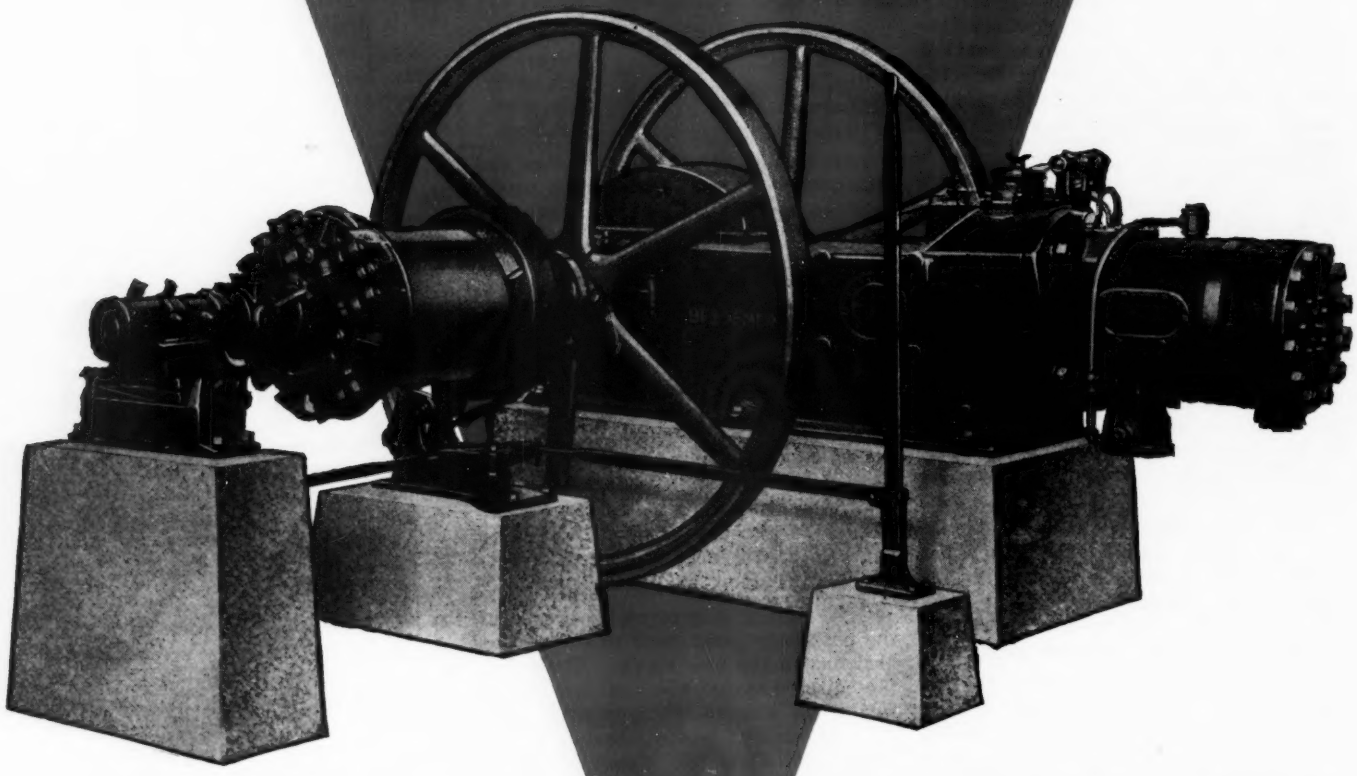

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shallow in depth to reach Cretaceous horizons or they were unfavorably located with regard to structure.

At present, the most closely watched test of the Alabama area will be that of John B. Greer and C. W. Robinson, of Shreveport, a location in 28-10N-4W, on Long-Bell Lumber Co. land, in Choctaw county.

The Greer & Robinson test will go to 4000 feet if commercial oil or gas is not found above that level. It is in the southern part of the area, on the Jackson fault, associated with the Hatchetigbee uplift. Robinson & Greer have blocked about 16,000 acres on the uplift and 54,000 acres in the county.

Two other Hatchetigbee tests under way are the No. 1 Wilson estate of S. A. Hobson, in 27-7N-1W, and the No. 1 Hobson Bros., in 9-8N-2W, Washington county, both of which are changing over to rotary tools after drilling to 300 feet. A fourth Hatchetigbee test, that of Oscar Brown in 26-3N-2W, Washington county, is shut down at 500 feet.

The Gulf Oil Corp. controls approximately 80,000 acres in Washington, Choctaw and Clarke counties, all taken for 10 year terms. Pure Oil Co. has about 30,000 acres in the three counties and is said to consider soon drilling a test well. Carter Oil Co. owns thousands of acres of 10-year leases, which have about four years to run before expiration. Amerada Petroleum Corp., The Texas Co., and Ramsey Bros., of Oklahoma City, also own blocks varying in totals from 5000 to 7000 acres. The three last mentioned companies hold most of their "protection" in the Jackson fault area.

Future articles of this series will discuss other Mississippi-Alabama tests drilling, details of old operations in relation to present wildcatting and the geology of various areas.

Rejects Royalty Oil Bids

WASHINGTON, March 22.—The government has rejected all bids opened on March 1, for the royalty oil from Kettleman Hills oil field in California. There were two bids essentially identical. One was from the Standard Oil Co. of California, and the other was from the General Petroleum Corp. of California. Both bidders offered the day to day field price.

The government saw no advantage in making a contract on a basis that would bring it only the return it would receive without any contract. For the present it will continue to sell its royalty oil from this field at the market price. Should it receive private bids on terms that provided a bonus over the field price it might dispose of this oil at private sale.

George H. Forster

Forster Elected Comptroller

LOS ANGELES, March 23.—George H. Forster, who has been assistant comptroller of the Union Oil Co. of California, since 1920, has been promoted to the office of comptroller. At the same time two new directors were elected and two men added to the board of Union Oil Associates.

R. D. Matthews, vice president of the company has held the title of comptroller since the death of R. S. Mill two years ago. With the promotion of Mr. Forster it will be possible for Mr. Matthews to give more of his time to the company's manufacturing activities.

Mr. Forster has taken a keen interest in the work of the American Petroleum Institute. He is chairman of the Pacific Coast regional committee on uniform methods of oil accounting.

Two new directors, John E. Jardine and Dwight Whiting, were elected to fill the vacancies caused by the deaths of William R. Staats and Frank Bolt. Mr. Jardine is president of the Los Angeles stock exchange and of the William R. Staats Co. He is also director of the Consolidated Steel Co. and of the Southern California Iron and Steel Co.

Mr. Whiting, although a comparatively young business man, is identified with several prominent concerns. He is president of the Whiting Finance Co., and the Whiting Indemnity Mortgage and Insurance Co.; vice president of the Whiting Bond and Mortgage Co., and the Union Oil Associates; and is a director of the Rochester American Fire Insurance Co. of New York. He is also a member of the Los Angeles regional board of the Bank of Italy.

W. L. Stewart, Jr., a director of the Union Oil Co., and Mr. Jardine were elected to the board of the Union Oil Associates.

Associated Announces Promotions

LOS ANGELES, March 22.—A recent announcement from the office of the president of the Associated Oil Co. lists the following important organization changes.

J. P. Edwards, formerly assistant secretary, was elected to fill the vacancy caused by the resignation of P. G. Williams as secretary of the Associated Oil Company.

In order to assist L. J. King, vice president in charge of production, the following appointments were announced: J. H. Jenkins, a new man to the company, becomes general manager of the producing division and land manager; J. A. Jones, formerly general superintendent, is made production manager in charge of all drilling and production activities, including petroleum engineering; Joseph Jensen, formerly assistant geologist, is appointed chief petroleum engineer; L. C. Decius, formerly assistant geologist, is appointed chief geologist in charge of all exploratory geological activities with offices at San Francisco; J. A. Taff is made consulting geologist, reporting directly to the president.

L. D. Jurs, vice president in charge of engineering, transportation and supplies, will have the following assistants: H. T. Earl, formerly assistant to the president, is now manager of transportation in charge of the following departments: Pipe line department, under the supervision of A. S. Jones; Marine department, under the supervision of G. D. Zeh; Traffic department, under the supervision of R. Hutcherson.

H. B. Haney, formerly assistant chief engineer, at Los Angeles, has been promoted to chief engineer with headquarters at San Francisco.

H. W. Wickstrom is assistant chief engineer in charge of work at Los Angeles.

The management of the sales division of the company is now vested in a sales committee, consisting of B. I. Graves, F. M. Rowles, and J. D. Jurs, chairman. Mr. Rowles retains his responsibility as sales manager.

To facilitate field operations in the sales department, the Pacific Coast territory of the company has been divided as follows: Northern department, headquarters at Seattle, with W. A. Reanier as manager; Central department, headquarters at San Francisco, with J. H. Lewis as manager; Southern department, headquarters at Los Angeles, with F. S. Shoup as manager and H. A. Jackson as assistant manager.

Visiting Around the Refineries

By Paul Truesdell

National Petroleum News

THAT men of scientific training are more and more climbing to the top in the world of commerce as well as in the world of technology is indicated by the make up of the new board of directors of the Standard Oil Co. of Indiana.

Four of the 11 members of the board are chemists. Dr. William M. Burton, the eminent inventor is one of them. The others are R. E. Humphreys, Thomas S. Cooke and Gentry Cash. Dr. Humphreys was re-elected a member of the board at the last stockholders' meeting. Dr. Burton, who retired as president of the company three years ago, Mr. Cooke and Dr. Cash, were elected at the same time.

* * *

PARAGON Refining Co., Toledo, is understood to be planning additions to its refinery which now has a capacity of 5000 barrels of crude a day.

A 2000-barrel a day Dubbs cracking unit is to be installed, making three such units with flashing stills. Additional tankage and a gasoline recovery plant also are expected to be built. The new equipment will give the plant facilities for running about 8500 barrels of crude a day.

* * *

A COMBINATION skimming and cracking unit of the Holmes-Manley type was the first unit constructed at the Pryse, Kentucky, refinery of The Texas Co. when it was taken over from the Great Southern Refining Co., according to the March issue of the Texaco Star. The article is by P. T. Williams, superintendent of the Pryse plant.

This unit has a capacity of about 2000 barrels of crude a day. Other refinery construction consisted of increasing the water supply from the Kentucky river a quarter of a mile away, building a battery of continuous treating agitators, fractionating equipment and a boiler house.

Laboratory control is the keynote to successful refinery operation nowadays, so one of the first things to be put up was a thoroughly modern laboratory. Other construction included an office building, remodeling the workers' cottages to make them more livable.

* * *

TO CRACK or not to crack.

There are two schools of thought in the refining business as to the answer. One group says, when crude is cheap and refined products markets are depressed, make your gasoline from the crude, shut down the cracking plants and sell the fuel oil for whatever it will bring, lest the additional gasoline made by cracking depress the market that much more.

The other school says, cut down your crude runs and make the gasoline from the cheapest charging stock available, thereby keeping your costs as low as possible and increasing your chances of making a profit in a low market.

It seems to me that the latter school has the right of it, in the long run at any rate. It certainly is more in line with economic laws to get the utmost possible gasoline out of the crude run, gasoline being the most valuable product, generally speaking, than it is to get a smaller yield of gasoline and sell the reduced crude for an inferior use at a losing price.

Talking with refiners indicates that the latter school of thought is gaining recruits.

* * *

DEATH in refineries from asphyxiation or explosions of gaseous mixtures undoubtedly will be greatly reduced and eventually will become a thing of the past, now that "electrical smellers" have been perfected. The device for determining the concentration of gas-air mixtures in tanks and tanker compartments which was described on page 72 of the March 13 issue of NATIONAL PETROLEUM NEWS recalls the apparatus described by H. H. Hall of the Standard of California last winter. This device, the invention of two Standard of California men was described in an earlier issue of this paper*.

Both instruments operate on the same principle but use different methods.

That refiners are deeply interested in methods for detecting dangerous gas concentrations in tanks is indicted by the fact that this was one of the leading topics of discussion at the meeting of the Fire and Safety Marshals of the National Petroleum Association held in Pittsburgh in January. This discussion brought out the fact that the fire marshals knew of no practical instrument for the purpose.

* * *

LIQUID phase cracking units that will produce finished gasoline, having as it comes from the condenser anti-knock value equal to that prescribed for Ethyl gasoline, is the latest thing I have heard of. These units, I am told, will operate at around 1500 pounds pressure and will have a temperature at the outlet of the coils, of somewhere above 900 degrees F.

It is claimed that this can be done so as to give a greater yield of gasoline than is obtained at lower temperatures and pressures and gas loss can be held to 4 or 5 per cent. Special alloy steels are necessary, however, to withstand the severe conditions.

This adds another factor to the question whether vapor phase cracking processes now developed or being developed will eventually knock out the liquid phase processes altogether or at least shove them definitely into second place.

*NATIONAL PETROLEUM NEWS Dec. 26, 1928 issue, page 60.

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Why Not One Gasoline Specification With Adjustable 10% Point?

By Paul Truesdell
N. P. N. STAFF WRITER

THE widest possible gulf yawns between the extremes involved in operating a heavy duty army truck on the Mexican border under a burning sun in a temperature of 110 degrees F. and operating an ambulance, which is run maybe two or three hours a week in the winter time at an army post along the Canadian border where the mercury crawls into the thermometer bulb and hides.

Vapor lock and loss in storage are the gasoline problems in the first case; starting and crankcase dilution in the other.

The government should be careful not to set an unnecessarily high standard for gasoline to be used under ordinary operating conditions in seeking to meet the problems of its extreme requirements. Perhaps it is impossible for two grades of gasoline to cover satisfactorily this wide range.

Then again, perhaps one grade could be made to do it.

We urge the Federal Specifications Board to adopt the motion offered by Dr. George Granger Brown at the Washington conference, which was almost unanimously carried. This was to change the proposed new specifications for U. S. Motor simply by omitting the lower temperature limit for the 10 per cent point. The government would reserve the right to specify a lower limit to the 10 per cent point on special orders for special conditions. This would leave the U. S. Motor specifications as follows: Ten per cent point, not above 176 F; 50 per cent point, not above 284 F., and 90 per cent point not above 392 F.

Why not go a step further and let the government obtain gasoline suitable for use in a very cold climate by fixing the upper limit of temperature for the 10 per cent point? Then, in the extremely rare cases where the U. S. Motor with special 10 per cent point upper limit would not be volatile enough to suit the purpose, domestic aviation grade could be used.

Dr. Dickinson says, and most oil men agree with him, that the 10 per cent point is the governing factor both in vapor lock and in easy starting. Then why not keep one gasoline and simply specify a higher or a lower 10 per cent point as occasion might require?

To take up the vapor lock problem first. A. Ludlow Clayden pointed out in the conference that vapor lock is a mechanical rather than a fuel problem and that changing the direction of the air intake on the engine will eliminate it. Probably the intake lines could be changed on most if not all of the army trucks and cars with little trouble.

To take an arbitrary attitude on the 10 per cent point temperature would be possibly to nullify much of the work done by Dr. Brown for the Natural Gasoline Association and by other research workers for individual companies, to improve the quality of motor fuel and to make possible the use of eater percentages of stabilized natural gasoline in combination with refinery gasoline, thus conserving a valuable natural resource.

Carefully stabilized natural gasoline contains very little fixed gas. It is thought to be the fixed gas dissolved in the fuel that is largely responsible for vapor locking troubles. In other words, it is foolish to make a restriction that would rule out a considerable quantity of fractions that would do useful work in Iowa or Nebraska or Pennsylvania, in order to avoid trouble that might occur in a very small number of cases in districts having tropic heat.

On the other end of the scale, the easy starting qualities and freedom from tendency to dilute the crankcase oil, finds at least two members of the technical committee in disagreement. Dr. Dickinson, the chairman, says the proposed highly volatile gasoline for government use would be for very special purposes only and could not be bought without a special dispensation.

Presumably it would be limited, according to Dr. Dickinson, to fire apparatus, ambulances, doctors' cars and similar vehicles operated under severe conditions in very cold climates.

Capt. Paul G. Rutten, quartermaster corps of the army, on the other hand, gives the oil men to understand that this high volatility fuel would be for general use in the army vehicles in the winter.

IT WOULD seem that the proposed new U. S. Motor (provided the light ends which furnish easy starting are not ruled out) would serve the purpose in all but the most severe conditions and under such conditions, domestic aviation might be used. The government of course, is entitled to any kind of gasoline it needs but the possibility of the states adopting as a winter gasoline standard any high test specification the government might formulate, should be given careful consideration.

Oil men challenge the opinion of Dr. Dickinson that the proposed high test is practically equal to the average gasoline sold to the public generally in winter.

If states adopt winter gasoline specifications, all kinds of trouble can be foreseen. For one thing, the dates of the beginning and end of winter would have to be set by law. That would mean that after a certain date in the fall, it would be illegal to sell the gasoline stored in hundreds of bulk stations over the states. Not a drop could be sold except of the prescribed "winter gasoline."

This would be a great nuisance. Of course, in the long run the public would pay for it and the motorists' gasoline needs would not be met any better than they are when the oil companies themselves adjust the quality of the gasoline they sell according to the weather, which they do usually by simply lowering the 10 per cent point.

What do you think of this proposal, Dr. Dickinson?
What do you think about it, refiners?

What Uncle Sam Is Thinking About When He Buys Gasoline

By Dr. H. C. Dickinson*

PURCHASES of commodities by the government and by many large consumers are generally made on specifications. This practice has many advantages, but it presents some special problems. Competition in quality is absent. Purchase must be made on the lowest price bid. In general, the materials supplied on specification will be the cheapest products which will meet those specifications. It is absolutely necessary, therefore, that the specifications shall rule out all products which are not satisfactory. Otherwise, the purchaser will be compelled at times to accept what he can not use.

When purchases are made in small amounts, regular commercial products will be supplied if these meet the specifications. When purchased in large quantities, however, it may pay the seller to supply a special product inferior to the usual trade standard provided this can be done within the specifications.

It is plain, therefore, that any specification should agree with trade practice and should admit in so far as possible any commercial product which is satisfactory. Government specifications for gasoline have so far met this requirement that they have become a generally accepted commercial standard, in some cases having been incorporated into state laws.

The fact that these specifications have acquired national commercial importance is fully realized by the technical committee and by the Federal Specifications Board. We are concerned, therefore, with making these specifications acceptable from the commercial standpoint without sacrificing the protection which the government must have.

The present gasoline specification has been in force without modification for about 6 years, except for the omission of the color requirement. In the meantime, radical changes have taken place in the motor fuel industry. Gasoline is no longer merely gasoline, but may be any one of many trademarked products. Moreover, these products actually differ in quality as well as in price. Advertising has created a demand for qualities with which the purchaser formerly was not concerned.

Naturally, government purchasers require what the public does. Changes in the commercial gasoline during the past few years have been due partly to purely commercial conditions and partly to important advances in our knowledge of what is a good gasoline. Intensive research by the industry and the government has led to important new facts. Some of these are as follows:

(1) The temperature of complete volatility, i.e., the dew point, is determined by the 90 per cent point of the A.S.T.M. distillation curve. The end point in this distillation has no significance. Thus the 90 per cent point alone tells all that is necessary to know as to the upper portion of the distillation curve.

(2) The temperature of initial volatility, i.e., the bubble point, is determined by the 10 per cent point of the A.S.T.M. distillation. The initial boiling point has no significance in this respect. Thus the 10 per cent point alone is a satisfactory criterion of the starting characteristics of a gasoline.

(3) The volatilities of any series of gasolines at any intermediate percentage evaporated are in the same order as the A.S.T.M. distillation temperatures at the same percentage evaporated.

(4) A.S.T.M. distillation temperatures (particularly in the lower portion of the range) are more significant when corrected for distillation loss.

On the basis of these facts, specifications of temperature at 10 per cent, 90 per cent and at some intermediate point, such as 50 per cent, preferably corrected for loss, suffice for a *complete* practical specification as regards the volatility of a gasoline.

Confining our attention for the present to U. S. Motor gasoline, the proposed temperatures at these three points are based largely on the work of the Bureau of Standards and on the experience of the government departments using fuels of known characteristics. The values at the 90 per cent, 50 per cent and 10 per cent points are considered in turn below.

(a) Under normal operating conditions, the 90 per cent point is a good indication of the tendency of the gasoline to dilute the crankcase oil. Experience has shown that it is not desirable to have the temperature at this point higher than 200 degrees C. in the case of U. S. Motor gasoline. No change is suggested.

(b) The relation, if any, between acceleration performance and the middle part of the A.S.T.M. curve is being investigated at the present time by the bureau, and tentatively the previous maximum of 140 degrees C. at the 50 per cent point has been left unchanged.

(c) The engine starting tests conducted by the bureau have shown that the 10 per cent point is the best single indication of the ease of starting. Quantitative evaluation of the test results has made it possible to estimate the A.S.T.M. temperatures at 10 per cent evaporated required for starting at various atmospheric temperatures. On this basis, a maximum of 80 degrees C. has been proposed for U. S. Motor gasoline. The 10 per cent point replaces the initial boiling point, which is inaccurate and not significant, and the 20 per cent point which is unnecessary if the 10 per cent point is specified.

UP to this point the effect of the proposed changes is only to allow more flexibility by dropping the initial, 20 per cent and the end points, and substituting the 10 per cent point. It is recognized that some refiners may oppose the lifting of these limits, because their presence in the specifications has cramped some of their competitors. There seems to be no justification whatever for retaining specifications requirements which

THE accompanying memorandum was distributed to those attending the oil industry conference held in Washington March 15 at the call of the American Petroleum Institute to discuss proposed changes in government specifications for gasoline.

Dr. Dickinson is the government's spokesman on technical matters connected with the preparation of specifications for gasoline to be bought for use of the government departments.

Some comments as to what we think when the government asks us for gasoline, will be found following this article.—Editor.

*Chairman of technical committee of Federal Specifications Board.

artificially and unnecessarily limit free competition.

The 10 per cent point is placed a little lower than would be required by the old specification, but a careful survey of commercial products has shown that practically none of them will be affected by this change. On the other hand, as will be shown later, government purchasers have been compelled to accept on the old specification gasolines which were unsatisfactory and which would not be accepted by the public.

THE one important change in the specification is the addition of a lower limit on the 10 per cent point. This has been made necessary by changes in refinery and trade conditions leading to a surplus of lighter fractions. So-called "vapor lock" due to low distillation temperature of the lighter fractions in the motor fuel is becoming increasingly prevalent, and a specification must be drawn to protect government purchasers from this difficulty, from which the general public is in a measure protected by competition.

The problem of vapor lock is basically one of vapor pressures, since bubbles of vapor cannot form in the fuel lines if the vapor pressure of the gasoline at the existing temperature is less than the external pressure. The following information on the vapor pressures of gasolines has been obtained by the bureau.

(1) The vapor pressure of any gasoline freed from water, ethane and air can be evaluated with accuracy at any temperature from the 10 per cent A.S.T.M. point.

(2) The solubility of air in a gasoline appears to be determined by the 10 per cent point.

(3) For practical purposes, the amount of ethane in commercial gasolines is very small and essentially constant.

(4) The effect of water on the vapor pressure is practically the same for all gasolines.

From these, it appears that differences in vapor pressures of gasolines are related to differences in the 10 per cent A.S.T.M. points. Hence a minimum 10 per cent point specification should furnish a safeguard against vapor lock under normal conditions of operation.

The proposed minimum temperatures are based on actual cases of vapor lock with fuels of known 10 per cent points, on confidential information from the petroleum and automotive industries and on the research work of the Natural Gasoline Association of America, who are extremely interested in the problem.

At the last annual meeting of that association, their director of research, Prof. G. G. Brown, summarized the results of an extensive piece of work on vapor lock with motor fuels. The following extracts are taken from Prof. Brown's report.

"Careful study of the results so far obtained indicates that the gas-free vapor pressure is the best single indication of the tendency of a fuel to vapor-lock.

"With a few exceptions the maximum temperature reached by the gasoline in the carburetor will not exceed 140 degrees F. in those cars equipped with thermostatically controlled shutters, or in other cases a temperature of about 50 degrees F. above atmospheric temperature.

"Although these results must not be regarded as conclusive, the discrepancies in these data are more apparent than real, and careful considerations of the conditions under which these tests were made lead to the conclusion that if the vapor pressure of the gas-free fuel or gasoline as it exists in the passages of the carburetor does not exceed atmospheric pressures at that temperature existing in the carburetor, the fuel will not cause vapor lock. Apparently the best available specification to insure that a fuel will not vapor lock, is that the fuel possess a gas free vapor pressure not greater than atmospheric at the maximum temperature reached by the fuel in the carburetor."

Considering the relation found on the one hand by the bureau between the 10 per cent point and the gas-free vapor pressure of a gasoline, and on the other hand by the Natural Gasoline Association between the gas-free vapor pressure and the vapor locking tendency, it appears that a minimum 10 per cent point would serve to specify gasolines from the standpoint of vapor lock, and this conclusion is in accord with other information which has come to the attention of the bureau.

THE relation between the 10 per cent point and the vapor-locking tendency of a gasoline is based on the 10 per cent point corrected for distillation loss. Hence if gasolines showing different amounts of distillation loss are to be put on a comparable basis as regards their vapor-locking tendency, an allowance must be made for the effect of distillation loss on the observed 10 per cent point.

If no correction is made, a gasoline with a high loss might pass the specifications whereas one with a low loss but the same vapor-locking tendency might fail by several degrees. A simple empirical method of applying a correction for loss is proposed.

The procedure is to permit a lowering of the observed 10 per cent point by 3 degrees F. for every per cent loss under 4 per cent. On this basis, the specification should place no limitation on any commercial product which would be generally acceptable to the public.

A proposed limitation incorporated in a note only as an optional provision, permits the purchaser when necessary to raise the lower limit on the 10 per cent point. This limitation has been found necessary in some special cases and will be found equally necessary in commercial practice under similar conditions if competition does not automatically fix a similar limit.

We are satisfied that no acceptable commercial product will be excluded by this limitation. However, the note in question is so drafted as to prevent, in so far as possible, its becoming a rigid requirement.

Considering now the proposed new specification for a more volatile gasoline, the demand for this gasoline has arisen in various services where ease of starting in cold weather, and freedom from crankcase dilution under abnormally severe conditions are important.

THE same procedure has been followed as for U. S. Motor gasoline. It should be recognized that this is a product which will be available for purchase only under special conditions probably requiring special authorization, and it is not probable that this specification will acquire any considerable commercial importance.

As a basis for this specification an attempt was made to determine what the trade considers a satisfactory high volatility gasoline. The 10 per cent of gasolines of highest volatility listed in the last Bureau of Mines Survey were averaged and the limits proposed for the new gasoline correspond closely to this average. Thus this specification reasonably represents current trade practice as well as a product which the government wants to purchase.

It does not, however, like the U. S. Motor gasoline specification, involve any immediate commercial or legal complications. In fact the rather wide difference between the two specifications at the 90 per cent point in particular, should prevent any confusion between them. * * *

Opens Chicago Office

TULSA, March 23.—Hill, Hubbell & Co. division of the General Paint Corp., is opening an office in Chicago, located on the 16th floor of the Bankers Bldg. In charge of this office will be Edgar S. Browning, vice president and general manager, Eastern division of the General Paint Corp. The office was made necessary by the company's connection with pipe coating and wrapping plants in the following mills: Youngstown Sheet & Tube Co., National Tube Co., A. O. Smith Corp., Central Tube Corp. and Spang, Chalfant Co.

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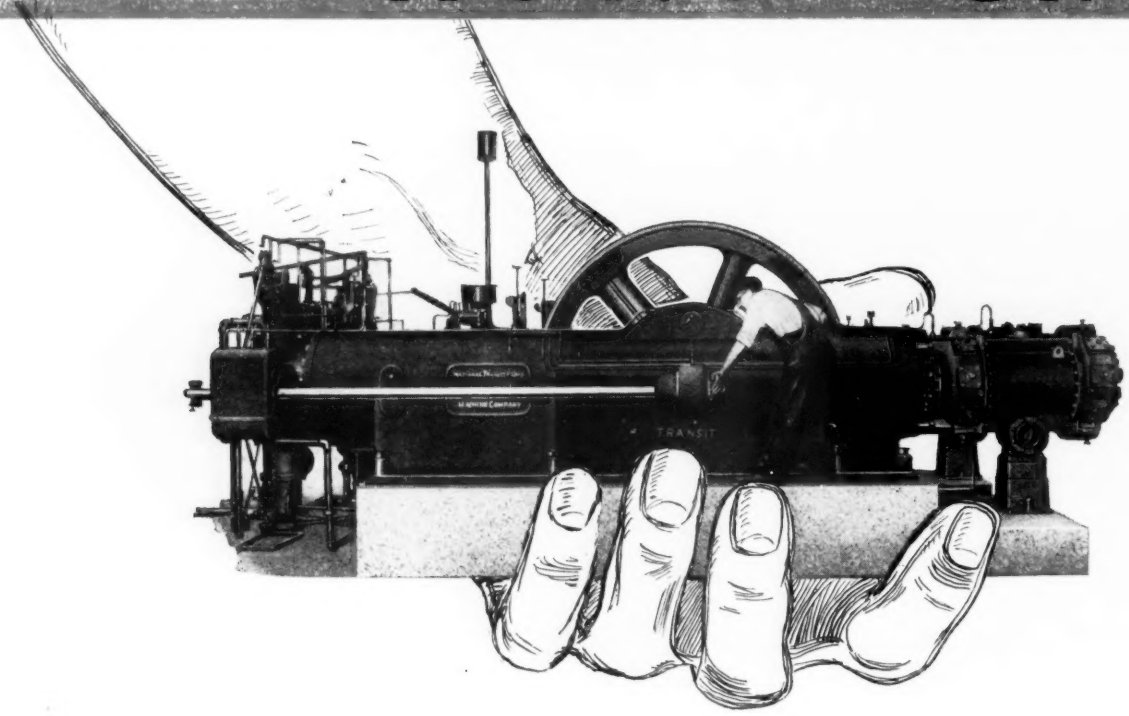

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Increases in Gasoline Production Greater Than Gain in Demand

By Roger B. Stafford
N. P. N. STAFF WRITER

CLEVELAND

INCREASE in new supply of gasoline kept well ahead of the gain in foreign and domestic demand in January, 1929, as compared with supply and demand in January, 1928, the Bureau of Mines statistical report on the operations of our industry in January shows.

The increase in new supply, the result of the third largest output for any month, was 22.04 per cent. The gain in foreign and domestic demand was 11.27 per cent.

Stocks of gasoline increased at a slower rate, the supply on hand Jan. 31, 1929, 40,648,000 barrels, being only 3,289,000 barrels or 8.78 per cent larger than stocks Jan. 31, 1928.

The daily average output of gasoline at United States refineries in January was 1,107,600 barrels. The record output was that of last September when the daily average reached 1,122,300 barrels. The second largest output was in October when the daily average was 1,109,800 barrels, or 22,000 barrels daily more than the January average output.

New supply of gasoline in January, 1929, exceeded foreign and domestic demand by 7,582,000 barrels, the gain in gasoline stocks in January. This was an excess supply of 27.82 per cent. In January, 1928, the excess supply was 4,052,000 barrels or 16.54 per cent.

Crude oil production increased further in January, daily average recovery rising to 2,644,500 barrels. This was the highest level ever attained. Stocks of crude oil east of California rose approximately 4,500,000 barrels in January and in California stocks almost 2,000,000, making a total increase in crude oil stocks of approximately 6,500,000 barrels. This was the largest gain in stocks of crude oil since January, 1928, when the increase was more than 10,000,000 barrels. The Jan. 31, 1929, stocks were 491,847,000 barrels, the largest volume of crude oil ever held above ground since the founding of our industry.

Above ground stocks of all oils stood at 625,955,000 barrels Jan. 31, 1929, also a new record. The previous high level was 616,382,000 barrels at the end of last May. The stocks of all oils rose 11,416,000 barrels in January and at the end of the month were 26,009,000 barrels larger than stocks at the end of January, 1928.

However, in terms of days' supply the situation at the end of January this year was much better than a year before. The Jan. 31, 1929, stocks represented 231.6 days' supply and those of a year before 259.7 days' supply. This was a fall of 10.82 per cent of stocks in terms of days' supply although the physical stocks increased more than 26,000,000 barrels.

Some students of the statistics of the industry will find solace in this percentage decline. Those who might not be so optimistic could point to the fact that every day in January the industry put 368,000 barrels of various oils into storage because that volume was not needed to supply the market. Of course, stocks normally build up in winter in order to meet the heavy gasoline demand of summer, but at no time in recent years has the daily average accumulation been so large.

Stocks of refined oils increased 4,837,000 barrels to 133,367,000 barrels Jan. 31, 1929. A year before stocks of all refined oils totaled 125,126,000 barrels.

The January report was compiled under the supervision of G. R. Hopkins and covered reports from 332 refineries with a rated capacity of 3,365,000 barrels of crude oil daily. They were operated at 76 per cent of their rated capacity. In December 336 refineries reported they were operated at 78 per cent of their rated capacity, which was 3,271,000 barrels a day. This indicates enlargements of some refineries were put into operation in January.

Crude Production—Barrels

	Jan. 1929	Dec. 1928	Jan. 1928
Arkansas	75,000	82,600	88,100
California	754,400	696,000	613,800
Colorado	6,900	6,700	7,100
Illinois	16,300	16,600	16,400
Indiana	2,800	3,100	2,500
Kansas	94,400	96,100	107,900
Kentucky	18,900	19,200	17,500
Louisiana:			
Inland	34,000	35,400	43,900
Gulf Coast	23,300	19,300	13,400
Michigan	5,100	2,300	1,000
Montana	9,900	11,200	11,900
New Mexico	2,500	3,400	2,500
New York	8,200	8,100	6,000
Ohio	17,200	17,300	18,100
Oklahoma	738,200	734,600	677,100
Pennsylvania	27,400	27,300	24,600
Tennessee	100	.....	100
Texas: Inland	631,300	607,400	519,000
Gulf Coast	113,900	109,400	104,200
West Virginia	14,900	14,200	14,900
Wyoming	49,800	52,700	55,600
Total U. S.	2,644,500	2,562,900	2,345,600
Classification by Gravity (Approximate)			
Light	2,413,300	2,297,800	2,085,800
Heavy	231,200	265,199	259,800

Crude Oil

The 81,600-barrel increase in crude production in January over December production was due almost wholly to California and Texas. An in-

Petroleum Supply and Demand — Barrels

	Jan. 1929	Dec. 1928	Nov. 1928	Jan. 1928
Domestic Crude Production: Light	74,812,000	71,231,000	67,999,000	64,658,000
Heavy	7,167,000	8,217,000	8,032,000	8,055,000
Imports of crude oil	8,075,000	6,807,000	6,908,000	6,145,000
Imports of refined oil	884,000	1,097,000	728,000	1,165,000
Natural gasoline produced	3,983,000	3,929,000	3,769,000	3,405,000
Benzol used in blending	250,000	253,000	241,000	226,000
Total new supply of all oils	95,171,000	91,534,000	87,677,000	83,654,000
Total stocks end of preceding month	614,539,000	609,581,000	607,369,000	589,607,000
Total supply of all oils	709,710,000	701,115,000	695,046,000	673,261,000
Exports of crude oil	1,972,000	1,529,000	1,691,000	1,232,000
Exports of refined oil	11,714,000	9,483,000	11,298,000	11,734,000
Domestic demand, crude and refined	70,069,000	75,564,000	72,476,000	60,349,000
Total demand	83,755,000	86,576,000	85,465,000	73,315,000
Total stocks of all oils end of month	625,955,000	614,539,000	609,581,000	599,946,000
Days' supply	231.6	220.0	213.9	259.7
Increase in stocks of all oils	11,416,000	4,958,000	2,182,000	12,118,000
Daily average new supply	3,070,000	2,953,000	2,923,000	2,699,000
Daily average demand	2,702,000	2,793,000	2,849,000	2,365,000
Daily average excess of supply	368,000	160,000	74,000	334,000
Crude stocks east of Calif: Light	322,749,000	320,015,000	319,196,000	309,372,000
Heavy	50,164,000	48,416,000	48,423,000	49,888,000
In California: Light	19,196,000	16,995,000	16,524,000	20,493,000
Heavy	99,738,000	99,975,000	98,529,000	94,327,000
Total stocks of crude	491,847,000	485,401,000	482,672,000	474,080,000
Total stocks of refined	133,367,000	128,530,000	126,505,000	125,126,000
Total stocks of natural gasoline	741,000	608,000	404,000	740,000

crease of less than 4000 barrels in Oklahoma was offset by declines in many other states.

California's daily average production increased 58,400 barrels to 754,400 barrels. Texas production outside the Gulf Coast increased 23,900 barrels daily average to 631,300 barrels daily and the recovery of crude in the Gulf Coastal pools of Texas rose 4500 barrels daily to 113,900 barrels. Louisiana Gulf Coast production increased 4000 barrels daily average. Michigan production rose to 5100 barrels daily, a gain of 2800 barrels over the December production. Rocky Mountain production fell 4900 barrels daily average.

Crude Oil Production by Fields —Barrels

Fields	Daily Average Jan. 1929	Dec. 1928	Jan. 1928
Appalachian	83,300	82,300	77,400
Lima-Indiana	3,500	4,000	4,000
Michigan	5,100	2,300	1,000
Ill.-S. W. Indiana	19,000	19,500	18,700
Mid-Continent	1,572,900	1,556,100	1,436,000
Gulf Coast	137,200	128,700	117,600
Rocky Mountain	69,100	74,000	77,100
California	754,400	696,000	613,800
U. S. Total	2,644,500	2,562,900	2,345,600

Although production in the Appalachian field was only 1000 barrels more in January than in December, it is probable that the production of Pennsylvania grade crude was more than 1000 barrels more. New York and Pennsylvania average production was up only 100 barrels for each state but West Virginia production was 700 barrels daily average more and central and eastern Ohio production was up 300 barrels daily average to 13,800 barrels. Kentucky production, which is classified with the Appalachian in the field production report, was down 300 barrels daily average.

In the compilation of crude oil stocks not held at refineries the Kentucky crude is separated from the other Appalachian field crude. Stocks of Kentucky crude increased 44,000 barrels in January and the recent reduction in the price of the Somerset grade indicates that the accumulation of crude stocks there has continued since January.

Stocks of crudes from other Appalachian districts—New York, Pennsylvania, West Virginia, eastern and Central Ohio—were lowered 67,000 barrels in January. Just what percentage of that draft was Pennsylvania grade oil is unknown but it is probable that most of it was the Pennsylvania grade.

Deliveries of Applachian crude, including Kentucky, averaged 84,100 barrels in January as compared with 93,100 barrels average in December and 81,800 barrels in January, 1928. The decline of deliveries in January may have been caused by the curtailment of runs to stills by several Independent Pennsylvania refiners.

Deliveries of domestic petroleum, daily average barrels by fields of origin of the crude in January and December compare:

Field	January	December
Appalachian	84,100	93,100
Lima-Indiana	5,000	5,600
Michigan	5,100	2,300
Ill.—S.W Ind.	20,800	16,000
Mid-Continent	1,491,300	1,503,600
Gulf Coast	128,700	131,900
Rocky Mountain	77,200	81,000
Total	1,812,200	1,833,500
Exclusive of exports	1,771,300	1,797,600
Foreign crude	258,000	219,000

Imports of crude oil increased 40,900 barrels daily average to 260,500 barrels daily. Receipts from Venezuela rose to an average of 181,400 barrels daily.

Daily average imports in January and December with countries in which the crude originated compare:

Origin	January	December
Mexico	25,300	41,700
Venezuela	181,400	132,000
Columbia	41,000	39,600
Other countries	12,800	6,300
Total	260,500	219,600

Exports of crude averaged 63,600 barrels daily in January as compared with 49,300 barrels daily in December. No California crude was shipped through the Panama canal to eastern United States ports.

Stocks of Crude Oil

Domestic Unless Otherwise Specified. Amounts in Thousands of Barrels

AT REFINERIES

	Jan 1929	Dec. 1928	Jan. 1928
East Coast: Domestic	8,340	8,496	8,469
Foreign	5,072	4,306	4,004
Appalachian	2,256	2,183	1,883
Indiana, Illinois, etc.	2,856	2,939	2,812
Oklahoma, Kansas, etc.	6,001	5,530	5,655
Texas Inland	2,166	2,184	1,484
Texas Gulf Coast: Domestic	8,130	7,206	8,006
Foreign	310	207	153
Ark. and inland La.	841	758	441
Foreign	1,717	1,359	1,289
Louisiana Gulf Coast: Domestic	2,731	3,315	5,886
Rocky Mountain	2,098	2,046	1,498
U. S. east of Calif.	42,518	40,529	41,580

AT TANK FARMS, IN PIPE LINES AND ELSEWHERE THAN REFINERIES

(Reported by Field of Origin)

Appalachian	4,671	4,738	6,148
Kentucky	808	764	1,048
Lima-Indiana	1,115	1,162	1,128
Ill., S. W. Indiana	11,312	11,367	12,122
Okla., Kans., Tex. except coastal	241,984	239,527	225,885
N. La.-Ark.	26,353	26,280	25,817
Gulf Coast	18,568	18,304	18,161
Rocky Mountain	25,248	25,501	27,288
East of Calif. pipe line tank farm stocks	330,059	327,643	317,597
Foreign Crude: Atlantic ports	69	49	40
Gulf ports	267	210	43
Total refinery, pipe line and tank farm stocks east of Calif.	372,913	368,431	359,260
California: 20° and lighter	19,196	16,995	20,493
Heavier than 20°	99,738	99,975	94,327
Grand total	491,847	485,401	474,080

CLASSIFICATION BY GRAVITY

	East of California		
24° and lighter	322,749	320,015	309,372
Heavier than 24°	50,164	48,416	49,888

PRODUCERS STOCKS

(Approximate)

East of California	7,400	7,300	.....
California	1,223	.....	.....

Crude Stocks as Month Ends

(Thousands of Barrels)

1928	East of California	†In Calif.	Total U. S.
January	359,260	114,820	474,080
February	363,807	114,907	478,714
March	369,249	114,117	483,366
April	371,898	113,053	484,951
May	371,969	113,111	485,080
June	371,212	113,431	484,643
July	369,389	114,878	484,267
August	368,816	113,367	482,183
September	366,750	113,433	480,183
October	368,007	113,767	481,774
November	367,619	115,053	482,672
December	368,431	116,970	485,401
1929			
January	372,913	118,934	491,847

†Includes heavy fuels.

Runs to Stills

Daily average charges of all oil including natural gasoline, was 20,000 barrels less in January than in De-

Daily Average Runs to Stills — All Oils — Barrels

	East Coast	Appalachian	Ind.-Ill.	Okla.-Kans.	Texas	La.-Ark.	Rocky Mt.	Calif.	Total U. S.	
January, 1928	478,032	84,613	247,097	288,645	482,613	202,064	85,936	570,161	2,439,161	January, 1928
February	497,723	86,690	250,793	294,552	510,586	201,518	83,207	587,690	2,512,759	February
March	466,193	88,548	268,000	306,065	523,548	203,839	89,064	593,968	2,539,225	March
April	499,900	92,933	272,900	319,200	533,967	218,233	93,433	599,300	2,629,867	April
May	502,613	98,322	296,290	331,903	540,613	237,290	101,774	584,032	2,692,839	May
June	541,867	101,233	310,767	332,500	532,233	216,900	96,867	625,833	2,758,200	June
July	525,903	102,065	313,742	338,646	567,967	212,258	97,935	639,484	2,798,000	July
August	525,355	103,645	323,161	357,968	589,710	221,774	102,000	634,613	2,858,226	August
September	532,367	108,200	329,967	364,033	569,200	246,000	102,067	640,900	2,892,734	September
October	503,838	102,193	315,935	346,419	573,258	243,968	101,033	638,710	2,825,354	October
November	497,467	101,600	322,000	328,400	597,367	237,600	95,167	646,233	2,825,834	November
December	501,097	100,548	310,032	328,935	563,064	237,097	91,032	677,806	2,809,611	December
January, 1929	496,774	98,452	304,290	318,161	576,129	227,355	92,613	676,097	2,789,871	January, 1929

Natural Gasoline and Motor Blends — Barrels

Districts	Daily Avg. Production Jan. (net)	Daily Avg. Production Dec. (net)	Stocks End of January	Stocks End of December	Motor Fuel Blends Made in Jan.	Motor Fuel Blends Made in Dec.	Stocks Blends End of Jan.	Stocks Blends End of Dec.	Districts
Appalachian	8,756	8,141	70,143	58,000	4,927	6,738	5,095	5,571	Appalachian
Ills., Ky., etc.	1,076	1,152	7,476	6,762	48	95	190	167	Ill., Ky., etc.
Oklahoma	42,319	43,779	312,310	247,428	80,786	93,667	11,071	15,571	Oklahoma
Kansas	2,381	2,534	31,405	22,738	738	738	167	167	Kansas
Texas	23,963	23,963	236,476	193,452	18,595	21,714	3,048	3,714	Texas
Louisiana	3,917	3,917	26,071	28,310	738	1,119	143	500	Louisiana
Arkansas	2,074	2,074	7,833	8,000	9,904	.....	500	24	Arkansas
Rocky Mountain	2,534	2,918	17,071	15,571	.....	.....	.....	.....	Rocky Mountain
California	41,474	38,249	32,643	27,833	Not Available	.....	262	.....	California
U. S. Total	128,494	126,727	741,428	608,094	115,738	124,071	20,476	25,714	U. S. Total

Gasoline Situation by Districts — Barrels

Districts	Jan. 1929 Daily Avg. Output	Dec. Daily Avg. Output	January Change %	January Daily Avg. Shipments	December Daily Avg. Shipments	January Change %	Stocks January, 1929	Stocks December 1928	Stocks January 1928	Districts
East Coast	152,000	151,097	+ 0.60	125,323	125,064	+ 0.20	6,364,000	5,537,000	5,613,000	East Coast
Appalachian	44,516	45,387	— 1.92	32,387	35,935	— 9.87	1,605,000	1,229,000	1,234,000	Appalachian
Ind., Ill., etc.	160,742	164,742	— 2.43	106,096	136,387	—22.21	6,793,000	5,099,000	4,619,000	Ind., Ill., etc.
Okla., Kans., etc.	162,064	167,161	— 3.05	125,322	133,806	— 6.34	4,830,000	3,691,000	3,507,000	Okla., Kans., etc.
Texas	239,000	223,258	+ 7.05	199,290	213,097	— 6.48	6,094,000	4,863,000	5,174,000	Texas
La. and Ark.	79,032	81,677	— 3.24	59,226	72,839	—18.69	2,772,000	2,158,000	1,905,000	La. and Ark.
Rocky Mountain	44,484	44,516	— 0.07	28,743	31,645	— 9.17	2,056,000	1,568,000	2,035,000	Rocky Mountain
California	225,742	215,935	+ 4.54	186,613	216,258	—13.71	10,134,000	8,921,000	12,025,000	California
U. S. Total	1,107,580	1,093,773	+ 1.26	863,000	965,031	—10.57	40,648,000	33,066,000	36,112,000	U. S. Total
Texas Gulf Coast	185,258	170,000	+ 8.97	146,000	160,871	— 9.24	5,280,000	4,063,000	4,399,000	Texas Gulf Coast
La. Gulf Coast	59,516	61,645	— 3.45	41,935	33,323	+25.84	2,524,000	1,979,000	1,807,000	La. Gulf Coast

cember. The January average was 2,789,871 barrels, the smallest volume since last June. Runs were larger than in December in only Texas and the Rocky Mountain plants. The largest reduction in runs was in Oklahoma and Kansas, slightly more than 10,000 barrels daily, with Louisiana-Arkansas running a close second in curtailment with a decrease of slightly less than 10,000 barrels daily.

Runs at the East Coast, Appalachian, Indiana-Illinois, and Oklahoma-Kansas plants were the smallest on the average since last spring.

Gasoline

In spite of the smaller runs to stills daily average production of gasoline was increased 13,807 barrels or 1.26 per cent in January over December average output. Texas production was increased 15,750 barrels daily average when Gulf Coastal plants stepped up their output that amount. California refineries increased their gasoline production almost 10,000 barrels daily average.

Shipments of gasoline were a trifle larger in January than in December from East Coast plants but for the whole country shipments were 102,000

Gasoline Supply and Demand — Barrels

	Production	Imports	Exports	Domestic Shipments	Stocks End of Month
January, 1928	27,981,000	562,000	3,713,000	20,778,000	37,368,000
February	26,856,000	372,000	3,341,000	21,402,000	39,853,000
March	29,276,000	259,000	4,016,000	24,294,000	41,078,000
April	29,317,000	472,000	4,111,000	25,567,000	41,189,000
May	30,825,000	368,000	5,812,000	28,346,000	38,224,000
June	30,703,000	212,000	4,808,000	29,469,000	34,862,000
July	32,974,000	267,000	5,167,000	32,542,000	30,394,000
August	34,101,000	479,000	4,563,000	33,336,000	27,075,000
September	33,669,000	193,000	4,837,000	29,722,000	26,378,000
October	34,403,000	388,000	4,049,000	30,680,000	26,440,000
November	33,171,000	304,000	4,678,000	26,052,000	29,185,000
December	33,907,000	420,000	3,802,000	26,644,000	33,066,000
1928 Total	377,183,000	4,296,000	52,897,000	328,832,000	33,066,000
January, 1929	34,335,000	499,000	4,650,000	22,602,000	40,648,000

Kerosene Supply and Demand — Barrels

	Production	Imports	Exports	Domestic Shipments	Stocks End of Month
January, 1928	5,058,000	46,000	2,350,000	2,799,000	7,670,000
February	4,749,000	11,000	1,551,000	3,266,000	7,613,000
March	4,715,000	6,000	1,852,000	2,722,000	7,760,000
April	5,033,000	20,000	1,912,000	3,168,000	7,733,000
May	5,243,000	1,000	2,057,000	3,383,000	7,537,000
June	4,849,000	24,000	1,655,000	2,323,000	8,432,000
July	4,994,000	19,000	1,834,000	3,141,000	8,470,000
August	5,389,000	2,000	1,678,000	3,296,000	8,887,000
September	5,060,000	.....	2,090,000	3,264,000	8,593,000
October	5,190,000	55,000	1,755,000	3,469,000	8,614,000
November	4,908,000	.....	2,091,000	2,545,000	8,886,000
December	4,968,000	20,000	1,241,000	3,632,000	9,001,000
1928 Total	60,156,000	204,000	22,066,000	38,008,000	9,001,000
January, 1929	4,700,000	38,000	1,918,000	2,956,000	8,865,000

Kerosene Situation by Districts — Barrels

Districts	Jan. 1929 Daily Avg. Output	Dec. Daily Avg. Output	January Change %	January Daily Avg. Shipments	December Daily Avg. Shipments	January Change %	Stocks January, 1929	Stocks December 1928	Stocks January 1928	Districts
East Coast	19,645	21,483	— 8.55	21,645	28,291	—23.49	1,226,000	1,288,000	1,463,000	East Coast
Appalachian	9,129	9,903	— 7.82	9,355	9,193	+ 1.76	305,000	312,000	307,000	Appalachian
Ind., Ill., etc.	13,710	16,903	—18.86	27,000	19,484	+38.58	874,000	1,286,000	930,000	Ind., Ill., etc.
Okla., Kans., etc.	24,516	25,677	— 4.52	23,097	25,000	— 7.61	773,000	729,000	699,000	Okla., Kans., etc.
Texas	40,516	36,193	+11.94	40,096	34,548	+16.06	1,578,000	1,565,000	1,213,000	Texas
La. and Ark.	13,000	15,839	—17.92	13,258	17,742	—25.27	938,000	946,000	1,066,000	La. and Ark.
Rocky Mountain	4,516	4,774	— 5.40	2,646	2,355	+12.36	424,000	366,000	411,000	Rocky Mountain
California	26,581	29,484	— 9.85	18,903	19,871	— 4.87	2,747,000	2,509,000	1,581,000	California
U. S. Total	151,613	160,256	— 5.39	156,000	156,484	— 0.31	8,865,000	9,001,000	7,670,000	U. S. Total
Texas Gulf Coast	32,355	28,742	+12.57	31,677	26,322	+20.34	1,493,000	1,472,000	1,132,000	Texas Gulf Coast
La. Gulf Coast	11,064	14,226	—22.23	11,806	16,097	—26.66	904,000	927,000	1,051,000	La. Gulf Coast

Lubricant Situation by Districts — Barrels

Districts	Jan. 1929 Daily Avg. Output	Dec. Daily Avg. Output	January Change %	January Daily Avg. Shipments	December Daily Avg. Shipments	January Change %	Stocks January, 1929	Stocks December 1928	Stocks January 1928	
East Coast	30,548	28,129	+ 8.60	26,129	26,710	— 2.17	2,910,000	2,773,000	2,705,000	East Coast
Appalachian	13,871	14,129	— 1.83	13,484	14,548	— 7.31	1,232,000	1,220,000	1,087,000	Appalachian
Ind., Ill., etc.	10,000	10,258	— 2.51	10,322	8,484	+21.66	795,000	805,000	908,000	Ind., Ill., etc.
Okla., Kans., etc.	6,774	7,645	—11.39	4,936	6,677	—26.07	537,000	480,000	528,000	Okla., Kans., etc.
Texas	23,904	26,064	— 8.29	22,419	18,032	+24.33	1,945,000	1,899,000	1,681,000	Texas
La. and Ark.	1,774	1,839	— 3.53	1,871	1,839	+ 1.74	100,000	103,000	126,000	La. and Ark.
Rocky Mountain	1,548	1,581	— 2.09	1,226	839	+46.13	191,000	181,000	142,000	Rocky Mountain
California	6,581	6,903	— 4.67	4,645	5,903	—21.31	939,000	879,000	801,000	California
U. S. Total	95,000	96,548	— 1.60	85,032	83,032	+ 2.41	8,649,000	8,340,000	7,978,000	U. S. Total
Texas Gulf Coast	23,097	25,032	— 7.73	21,129	17,290	+22.20	1,878,000	1,817,000	1,616,000	Texas Gulf Coast
La. Gulf Coast	1,611	1,677	— 3.93	1,710	*1,678	— 1.91	98,000	101,000	124,000	La. Gulf Coast

*Revised

Lubricating Oil Supply and Demand — Barrels

	Production	Imports	Exports	Domestic Shipments	Stocks End of Month
January, 1928	2,654,000	.....	934,000	1,592,000	7,988,000
February	2,728,000	.....	841,000	1,543,000	8,332,000
March	2,878,000	.....	837,000	1,990,000	8,383,000
April	3,027,000	1,000	1,059,000	2,334,000	8,018,000
May	3,091,000	3,000	1,063,000	1,989,000	8,060,000
June	3,009,000	1,000	1,095,000	2,143,000	7,832,000
July	2,828,000	1,000	1,063,000	1,931,000	7,667,000
August	2,891,000	1,000	813,000	2,035,000	7,711,000
September	2,833,000	1,000	808,000	1,995,000	7,742,000
October	2,979,000	1,000	769,000	2,123,000	7,830,000
November	2,748,000	1,000	895,000	1,763,000	7,921,000
December	2,993,000	3,000	878,000	1,699,000	8,340,000
1928 Total	34,659,000	13,000	11,055,000	23,137,000	8,340,000
January, 1929	2,945,000	1,000	1,116,000	1,521,000	8,649,000

barrels or 10.57 per cent less daily.

Stocks increased in every refining district and were larger than a year before in all districts except California.

Movement of California gasoline through the Panama Canal to Atlantic and Gulf ports totaled 1,823,000 barrels in January, a 54,000-barrel decrease from the December movement.

Of the gasoline produced at refineries in January 20,058,000 barrels or 59 per cent was straight run; 11,047,000 barrels or 32 per cent cracked, and 3,230,000 barrels or 9 per cent natural gasoline. As compared with December these percentages were an increase of 1 point in straight run output and a decrease of 1 point in natural gasoline used.

How manufacture of gasoline has changed is shown by a comparison with proportions of output by the various methods in January, 1925, just four years before. That month 68 per cent of the gasoline was straight run, 25 per cent cracked, and only 7 per cent natural gasoline.

Natural Gasoline

Output of natural gasoline increased less than 2000 barrels daily average in January as compared with December. Stocks increased more than 132,000 barrels. The accumulation in stocks was mostly in the Mid-Continent.

Production of blends motor fuels was more than 8000 barrels less in January than in December and stocks were lowered more than 5000 barrels.

Kerosene

Kerosene production was curtailed in every district except Texas, output in the whole country being decreased more than 8000 barrels daily average, or 5.39 per cent.

Kerosene shipments were only 484 barrels daily average less than in January but stocks were lowered 136,000 barrels. Heavy draft was made on stocks in the Indiana-Illinois district and a large increase in stocks was reported by California. Stocks Jan. 31, 1929, were almost 1,200,000 barrels more than stocks Jan. 31, 1928.

Lubricants

Only the East Coast plants increased lubricant output in January. The decline in production for the whole country was 1548 barrels daily average of 1.6 per cent. Shipments

Gas and Fuel Oil Situation by Districts — Barrels

Districts	Jan. 1929 Daily Avg. Output	Dec. Daily Avg. Output	January Change %	January Daily Avg. Shipments	December Daily Avg. Shipments	January Change %	Stocks January, 1929	Stocks December 1928	Stocks January 1928	
East Coast	256,161	263,774	— 2.89	264,516	305,903	—13.53	5,101,000	5,360,000	10,563,000	East Coast
Appalachian	20,968	20,161	+ 4.00	21,839	21,064	+ 3.68	1,163,000	1,190,000	1,033,000	Appalachian
Ind., Ill., etc.	90,419	93,485	— 3.28	103,774	119,613	—13.24	2,357,000	2,771,000	1,214,000	Ind., Ill., etc.
Okla., Kans., etc.	96,226	102,097	— 5.75	138,742	104,193	+33.15	5,067,000	6,385,000	4,517,000	Okla., Kans., etc.
Texas	233,871	219,064	+ 6.76	235,290	239,903	— 1.92	11,908,000	11,952,000	7,672,000	Texas
La. and Ark.	101,322	107,290	— 5.56	111,516	110,645	+ 0.79	5,754,000	6,070,000	3,939,000	La. and Ark.
Rocky Mountain	16,355	14,968	+ 9.27	17,193	17,516	— 1.74	1,172,000	1,198,000	685,000	Rocky Mountain
California	373,000	382,161	— 2.40	.....	.....	.....	.....	.....	.....	California
U. S. Total	1,188,322	1,203,000	— 1.22	1,265,871	1,298,225	— 2.49	32,522,000	34,926,000	29,623,000	U. S. Total
Texas Gulf Coast	164,258	150,032	+ 9.48	165,129	168,839	— 2.20	9,215,000	9,242,000	6,103,000	Texas Gulf Coast
La. Gulf Coast	63,806	66,000	+ 3.32	73,129	70,322	+ 3.99	4,744,000	5,033,000	3,335,000	La. Gulf Coast

*Revised.

Coke, Asphalt, Miscellaneous Products

	Coke Output (Tons)	Coke Stocks (Tons)	Asphalt Output (Tons)	Asphalt Stocks (Tons)	Miscel. Products Output (Bbls.)	Miscel. Products Stocks (Bbls.)	Unfin. Oil Output (Bbls.)	Unfin. Oil Stocks (Bbls.)	Losses (Bbls.)	
January, 1928	103,200	331,300	202,000	219,000	613,000	1,183,000	2,293,000	36,762,000	2,142,000	January, 1928
February	100,100	335,100	207,000	233,900	633,000	1,297,000	2,199,000	37,282,000	1,976,000	February
March	107,200	352,400	265,200	269,800	659,000	1,527,000	2,282,000	37,128,000	2,268,000	March
April	109,400	342,100	273,800	273,700	656,000	1,601,000	2,478,000	38,215,000	2,222,000	April
May	118,400	348,300	330,700	262,200	879,000	1,392,000	2,792,000	38,762,000	2,398,000	May
June	118,100	343,700	331,600	270,800	892,000	1,130,000	2,325,000	38,380,000	2,578,000	June
July	127,000	384,900	330,800	247,200	938,000	1,200,000	2,787,000	40,657,000	2,820,000	July
August	136,100	402,100	316,400	225,500	991,000	857,000	2,530,000	39,596,000	2,660,000	August
September	119,100	402,200	305,600	202,900	873,000	748,000	2,226,000	39,732,000	2,644,000	September
October	125,000	404,400	319,800	209,900	867,000	723,000	1,954,000	38,452,000	2,657,000	October
November	131,000	418,800	244,400	228,000	723,000	726,000	2,838,000	38,114,000	2,388,000	November
December	132,000	436,900	169,800	235,500	677,000	635,000	3,166,000	38,601,000	2,275,000	December
January, 1929	137,900	403,800	188,400	229,100	661,000	653,000	2,513,000	38,264,000	2,542,000	January, 1929

Gas and Fuel Oil Supply and Demand — Barrels

	Production	Imports	Exports	Domestic Shipments	*Stocks End of Month
January, 1928	33,013,000	553,000	4,175,000	.....	30,665,000
February	31,897,000	666,000	3,420,000	.....	29,560,000
March	34,437,000	848,000	3,969,000	.....	29,104,000
April	33,870,000	1,176,000	4,211,000	.....	29,669,000
May	35,620,000	784,000	3,612,000	.....	32,887,000
June	35,765,000	468,000	4,238,000	.....	36,085,000
July	36,754,000	484,000	4,261,000	.....	36,410,000
August	37,390,000	515,000	3,420,000	.....	39,236,000
September	37,004,000	397,000	3,226,000	.....	39,900,000
October	36,941,000	320,000	3,356,000	.....	39,599,000
November	35,771,000	411,000	3,320,000	.....	37,878,000
December	37,293,000	646,000	3,254,000	.....	34,926,000
1928 Total	425,755,000	7,268,000	44,462,000	.....	34,926,000
January, 1929	36,838,000	335,000	3,699,000	.....	32,522,000

*East of California only.

were larger than December shipments from the Indiana-Illinois, Texas, Louisiana-Arkansas and Rocky Mountain districts. The increase in shipments for the whole country was 2000 barrels daily average or 2.41 per cent.

Stocks of lubricating oils were lowered in all but the Rocky Mountain of the districts whose January shipments were larger than December shipments.

Except in the Indiana-Illinois and Louisiana-Arkansas districts stocks were larger Jan. 31 than a year before.

Paraffin Wax

Paraffin wax production in January was 4,200,000 pounds more than December output and imports were 844,000 pounds more. Exports were 1,462,000 pounds more but domestic demand was 3,200,000 pounds less. Stocks increased 13,177,000 pounds to 123,521,000 pounds Jan. 31, the largest amount on hand since Jan. 31, 1928.

Gas and Fuel Oil

Output of gas and fuel oils was curtailed 1.22 per cent in January as compared with December output. Shipments from plants east of California were 2.49 less than December shipments. However, stocks of fuel oil at refineries east of California were lowered 2,404,000 barrels. Stocks Jan. 31, 1929, were 2,899,000 barrels more than stocks Jan. 31, 1928.

Dixie Loses Borsig

CHICAGO, March 23.—Dixie Distributors, Inc. of Michigan and Wisconsin have accepted the resignation of John Borsig, Field Representative, effective March 1.

This rather sudden termination of Mr. Borsig's work with Dixie came after a period of misfortune to Mr. Borsig through illness and death in his family which necessitated his giving up duties that would take him away from home.

During his employment by the Dixie organization, Mr. Borsig made a host of new friends—for Dixie and for himself, and his work fully justified the faith and hopes of the directors who sought and secured his services last October.

In accepting his resignation, both Mr. L. V. White, President of Dixie Distributors, Inc., of Michigan, and Mr. Bert Rentmeester, President of Dixie Distributors, Inc., of Wisconsin, paid a sincere tribute to Mr. Borsig, and in behalf of the full membership of both states expressed heart-felt regret in losing a man who had, in such a short time, won a prominent and permanent place in the Dixie organization.

In filing his resignation, Mr. Borsig said:

"I feel that, without going into detail, you all know the sad happenings which have made this move imperative. You must also know that I have always had full confidence in the Dixie idea and that I believe, as always, that Dixie is the safest, most profitable and permanent organization that any independent distributor can join. And I want to assure you that regardless of where I may be I will do all I can to forward the Dixie movement."

Mr. Borsig's vacancy as Field Representative, it is understood, will be filled as soon as a suitable successor can be found.

Paraffin Wax Supply and Demand — Pounds

	Production	Imports	Exports	Domestic Shipments	Stocks End of Month
January, 1928	55,378,000	1,117,000	39,712,000	17,696,000	149,725,000
February	49,158,000	1,337,000	38,036,000	25,705,000	136,479,000
March	50,170,000	1,767,000	40,147,000	28,747,000	119,522,000
April	57,548,000	2,996,000	34,122,000	36,235,000	109,709,000
May	51,072,000	1,855,000	34,826,000	24,171,000	103,639,000
June	50,792,000	1,715,000	33,594,000	30,563,000	91,989,000
July	45,273,000	2,226,000	35,290,000	19,722,000	84,476,000
Augusta	54,429,000	2,793,000	31,446,000	30,630,000	79,622,000
September	50,428,000	1,880,000	26,396,000	20,117,000	85,417,000
October	54,546,000	1,930,000	26,281,000	22,798,000	92,814,000
November	56,665,000	2,994,000	25,170,000	23,354,000	103,949,000
December	54,685,000	2,138,000	26,603,000	23,825,000	110,344,000
1928 Total	630,144,000	24,748,000	391,623,000	303,563,000	110,344,000
January, 1929	58,885,000	2,982,000	28,065,000	20,625,000	123,521,000

If, for instance, one of your men delivers gasoline, instead of kerosene, resulting in injury, death, and property damage, are you prepared to pay the judgments which will follow?

May we explain the coverage and low cost of a policy which will fully protect you?

If you operate service stations we can also provide a policy which covers your public liability under a favorable form and at a reasonable cost.

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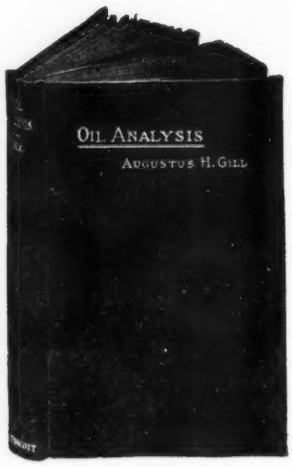

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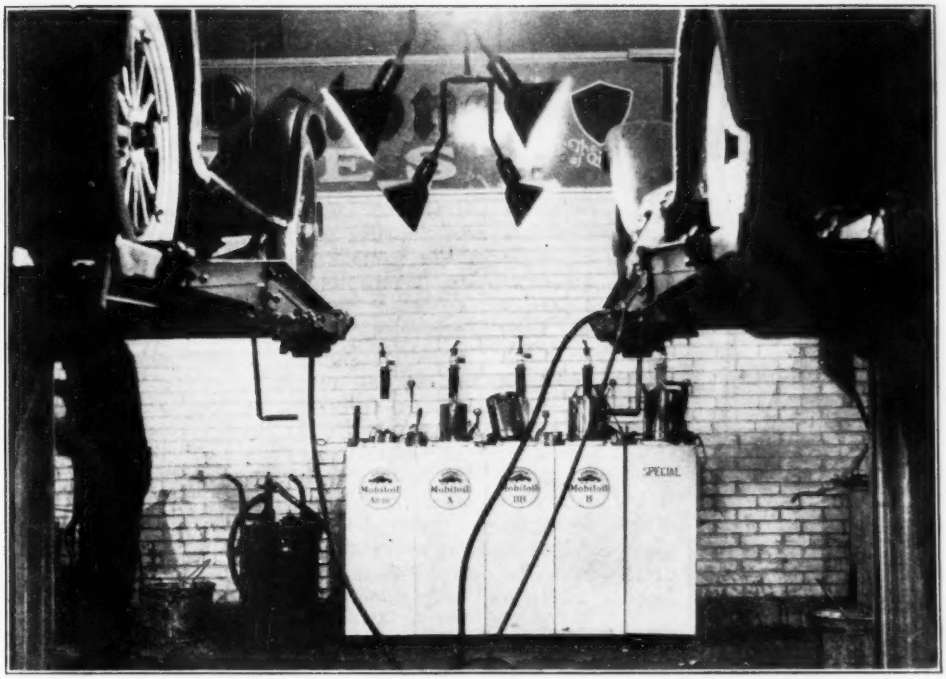


Lighting arrangement at the lifts at the Cord Tire Co. station

Making Motorist's Eye a Help to Sales

By O. C. Taylor

CHICAGO

THAT the motorist is on the wing and in a hurry is clearly reflected in some of the new equipment that has recently been installed at service stations. Quick and easily accessible service for the impatient motorist seems to be the new order of the day. Equipment and products as well are being gotten before the motorists' eyes for the psychological effect on sales also.

A complete assembly of new service equipment is to be found in the new "Service Island" at the Cord Tire Co.'s station at Michigan Ave. and 26th St.

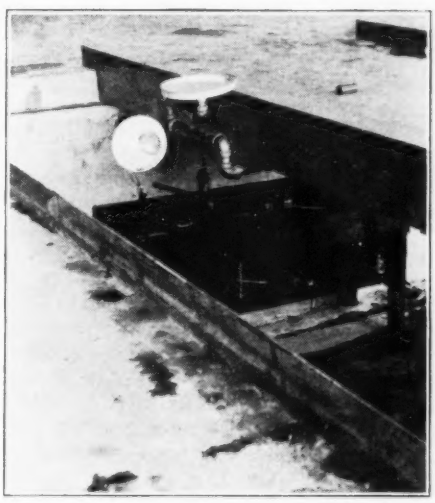
Instead of the usual tall pumps, the "Island" has the pumps built into it in such a way as to completely disguise them. There are no visible bowls to show how the gasoline "looks" and Mr. Benjamin Horwich, secretary of the company, said that in not a single case had a customer objected to their absence.

The gasoline is dispensed through meters. Four grades of oil, covering the range of automobile engine necessities, are available, the tanks being embedded in the island and open on both sides. Several water hose are also available on both sides.

Having gasoline, oil and water always ready for the motorist, on both sides of the island enables him to receive service without any wait that might be encountered when a motorist on the other side of the island was being served.

The lubrication department contains sixteen, 50-gallon tanks of lubricating oils and two display racks for the various size packages. Everything about the station is spick and span—clean and shining. No small part of the attractive appearance of the station is due to the care that is taken to keep it clean.

Several lifts are installed for greasing and drain service. These are fast acting and several men work on each car, so the motorist will not be kept waiting for his car. Twelve tanks of oil are placed conveniently near these lifts so that replenishment of crank-cases may be accomplished without loss of time.



A tool bench in the lubricating pits at the Neway Auto Cleaning Service Co., Chicago, saves time for the men at lubrication work

A unique heating device for enclosed service pits is installed at the NEWAY Auto Cleaning Service Company, at Michigan Ave. and 42nd St., Chicago. Mr. Leo M. Pollack, proprietor, demonstrated that, by the turn of an electric switch, he could heat the entire room—80 by 40 feet—in five minutes starting from zero. The heater uses two pounds of steam. It can be set to any desired temperature and that temperature kept by means of a thermostat.

At this station there is a tool bench under the service floor and handy for the service men; non-drip needle valves for oil pumps; small, portable pump tanks holding three grades of engine oil and with visible glass tubes. Two old standbys—an oil bottle rack and a cabinet for package goods—were also found at this station.

While "service" has long been the slogan of the progressive station man, competition for business is making this service to the motorist faster than before. Pumping heavier oils from outdoor pumps in cold weather has presented some problems but that can be overcome by means of steam pipes running close to the oil pipes and up to the pumps themselves. These steam pipes should be well covered with asbestos or other insulating material.

In Millions of HOME GARAGES

there is a Place for MODEL "200" BARREL PUMP

The PUMP that PUT LEAKY FAUCETS OUT OF BUSINESS

MODEL 200 is all-metal and so well built that it is capable of handling kerosene, gasoline, alcohol, etc., as well as motor oils. It fits 1½" to 2" drum openings and has adjustable sliding intake for draining 15 to 60 gallon capacity drums. Its handle is malleable and arranged for locking. Nozzle discharges a strong, unbroken stream and cuts off oil flow cleanly. Is transferable from drum to drum quickly. Replaces leaky faucets because of its exceedingly low price due to Bennett intensive specialization and large volume production.

A Thoroughly Proved Merchandising Idea

Model 200 has been responsible for the sale of literally hundreds of thousands of drums of extra oil to consumers. Use it to merchandise your motor oil.

Write for Sales Plans and Bulletins

We furnish thoroughly tested sales plans, advertising cuts, printed matter, etc. to assist you in merchandising oil thru use of Model 200.

Write Muskegon, Michigan, Bennett Export Corporation, 32 Broadway, New York City

Symbol of Quality

Along the Air Lanes

The Standard Oil Co. of Louisiana has undertaken an extensive project in the marking of air routes in the three Southern states where its marketing department operates, Arkansas, Louisiana and Tennessee. Airway signs are being painted on the roofs of the company's buildings in 374 towns and cities. The program is expected to be completed by May 1 at the latest. Airway markings will show the name of the town and essential data for the guidance of pilots. Where towns have improved or emergency landing fields an arrow will point in the direction of such facilities and figures will show their distance from the sign. Towns within 10 miles of a landing field will be distinctively marked, an arrow pointing in the direction of the nearest airport. When a town is more than 10 miles from a landing field, only its name will be shown on the sign; the arrow pointing due north. Letters comprising town names are to be from seven to 11 feet high, arrows 20 to 30 feet long and mileage figures four to five feet high. All markings are to be in chrome yellow on black background, in conformance with federal government specifications.

* * *

Capt. Boris Sergievsky, Russian flying ace during the World War, and now chief pilot for the Andian National Corp., Standard of New Jersey subsidiary at Cartagena, Colombia, was in New York recently telling of flying activities in that South American country.

Capt. Sergievsky's duties take him from the company's loading terminal at Cartagena over the Magdalena River into the field, where pipe lines transport oil from the Tropical Oil Co.'s concessions in the Berranca-Bermeja oil field to the sea.

Flying in the heat of the tropics, with their variating air currents and terrific rainstorms, is not all fun, Capt. Sergievsky says, according to the February edition of "The Lamp," the Standard's official house organ.

As a leader of one of the pursuit squadrons on the Russian Air Force during the war, Capt. Sergievsky is credited with bringing down 11 German planes. After the armistice he went to England and became a captain in the British Royal Air Force, returning again to Russia to join the White Army in its fight against the Bolshevic forces, and later escaping to Poland. He came to the United States in 1923.

* * *

A total of 435,581 pounds of air mail or a daily average of 15,556.5 pounds, was carried over 23 routes in February, compared with a daily average of 15,353 pounds in January, according to Postmaster Gen. Walter F. Brown. This is an increase of more than 200 pounds over January, and an increase over February, 1928, of 282,218 pounds.

* * *

Mr. Televox, the mechanical man developed by the Westinghouse Electric & Manufacturing Co., has now demonstrated his ability as an air field attendant. He has come to the aid of aviators by making dangerous landings on unlighted flying fields unnecessary. In obedience to the note of a siren on an approaching plane he recently turned on flood lights in a test made at the Newark, New Jersey, airport without the aid of human hands.

* * *

The newly organized Pittsburgh Aviation Industries Corp., formed to consolidate a group of aeronautical enterprises, includes a number of Gulf Oil Corporation officials on its board of directors. George S. Davison, president of the Gulf Refining Co., is chairman of its board of directors. Other board members include W. L. Mellon, president of the Gulf Oil Corp.; R. B. Mellon; F. A. Leovy, first vice president, Gulf Oil Corp. George R. Hann of the Fairchild Aviation Corp., is president of the Pittsburgh holding company, which includes among its subsidiaries the Pittsburgh Air Transport Corp., the Pittsburgh Aviation Securities Corp., the Pittsburgh Aviation Management Corp., and the Pittsburgh Aircraft Agency Corp.

Paul Braniff announces that service by airplane between Oklahoma City and Dallas has been discontinued by his company. He will continue to operate between Tulsa and Oklahoma City and between the latter point and Wichita Falls. The change was made because the new company formed by Erle P. Halliburton will operate between Fort Worth, Dallas and Oklahoma City on the St. Louis run.

KANSAS CITY, March 22.—H. R. Leland, president of the Leland Equipment Co., Tulsa, who is the distributor in Oklahoma for the Columbian Steel Tank Co., recently visited the latter's plant in Kansas City to make arrangements for shipments of oil equipment to his warehouses in Tulsa and Dallas.

Surveys Crank Case Oil Disposal

CLEVELAND, March 22. — The sewer department of the District of Columbia is conducting a campaign to reduce the quantity of crank case drainings which finds its way into sewers. The department considers these highly flammable oils dangerous in the sewers.

To aid its campaign the department has asked sellers of oil to report their accumulations of waste crank case oil. Replies were received from 82 service stations out of a total of about 200, 13 public garages out of about 150, 12 company garages out of about 100 and seven auto repair shops out of about 100.

The service station reported an average accumulation of 2760 gallons per year, public garages 1445 gallons per year, company garages 665 gallons per year and auto repair shops 410 gallons per year. Since reporting sellers were above the average the department has estimated that the average accumulations of service stations will be 2000 gallons per year, public garages 1000 gallons, company garages 500 gallons and auto repair shops 250 gallons.

On this basis the department estimates the total accumulations each year will be 752,000 gallons of which 400,000 gallons will be at service stations in the district, 150,000 gallons at public garages, 50,000 gallons at company garages, 25,000 gallons at auto repair shops and 127,000 gallons elsewhere.

An estimate is made also of the volume of waste oil taken from the average vehicle in the district. This estimate follows:

Car type	Total in District	Gal. per year	Total Gal. Accumulated
Passenger	100,000	5	500,000
Small truck	9,500	10	95,000
Large truck	5,500	20	110,000
Hacker	2,000	15	30,000
Dealer	1,000	5	5,000
Livery	800	10	8,000
Rental	400	10	4,000
Total	119,200		752,000

It was found that sales of fresh lubricating oil run about 13 gallons to each 5 gallons of crank case oil accumulated by dealers. This would indicate a crank case draining of 6.3 gallons per vehicle per year and an indicated consumption of 16.38 gallons per vehicle.

CHICAGO, March 22.—E. J. McGonigle has resigned his position in the bulk sales department of the Shaffer Oil & Refining Co., Chicago, effective April 1. He has not announced his new connections yet.

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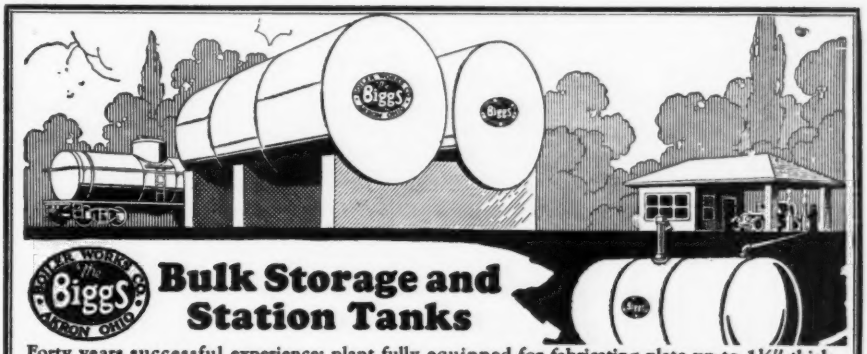

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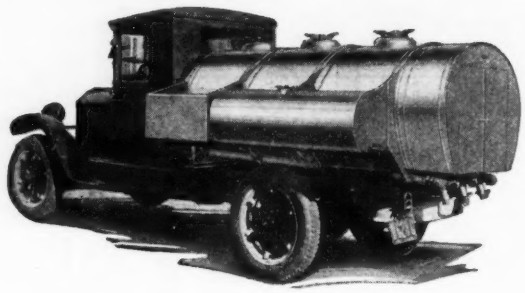
Are furnished in all sizes and equipped to fit every kind of service



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EST'D 1894 — TANKS FOR THE WORLD

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Sinclair Refg. Buys Central Ohio Oil

CLEVELAND, March 22.—Sinclair Refining Co. has bought the Central Ohio Oil Co. which has a bulk station and about 35 service stations at Columbus, O. The consideration was not announced.

It is said Sinclair will take possession of the Central Ohio property about April 1. Central Ohio has been a distributor of Sinclair products.

The company is headed by George J. Karb, former mayor of Columbus and for four or five years president of the Ohio Petroleum Marketers Association. Harvey S. Cashatt is vice-president and general manager and C. A. Wagner secretary. Messrs. Karb and Cashatt were the principal stockholders and will retire from the company, it is said, but Mr. Wagner will remain as local manager under the Sinclair control.

* * *

Sinclair Buys Large Missouri Marketer

ASH GROVE, Mo., March 21.—The T. S. Cross Oil Co. is another marketer in this section recently acquired by the Sinclair Refining Co., New York. This company was taken over March 18, according to T. S. Cross, owner.

The deal included bulk plants at Ash Grove, Walnut Grove, Greenfield, Golden City, Osceola, Lowry City, and Weaubleau; and service stations at each of these places except at Weaubleau; also about 80 other retail outlets, all in Missouri.

Among Sinclair's more important recent purchases in southern territory are the Puritan Oil Corp., St. Louis, and the Baxley Oil Co., Baxley, Ga.

New Marketer in Southeast

ATLANTA, Ga.—J. H. Smitha, who has been vice president of the Reed Oil Corp. here, has severed his connection with that company to organize the Chain Oil Co., with headquarters in the Walton Bldg., Atlanta.

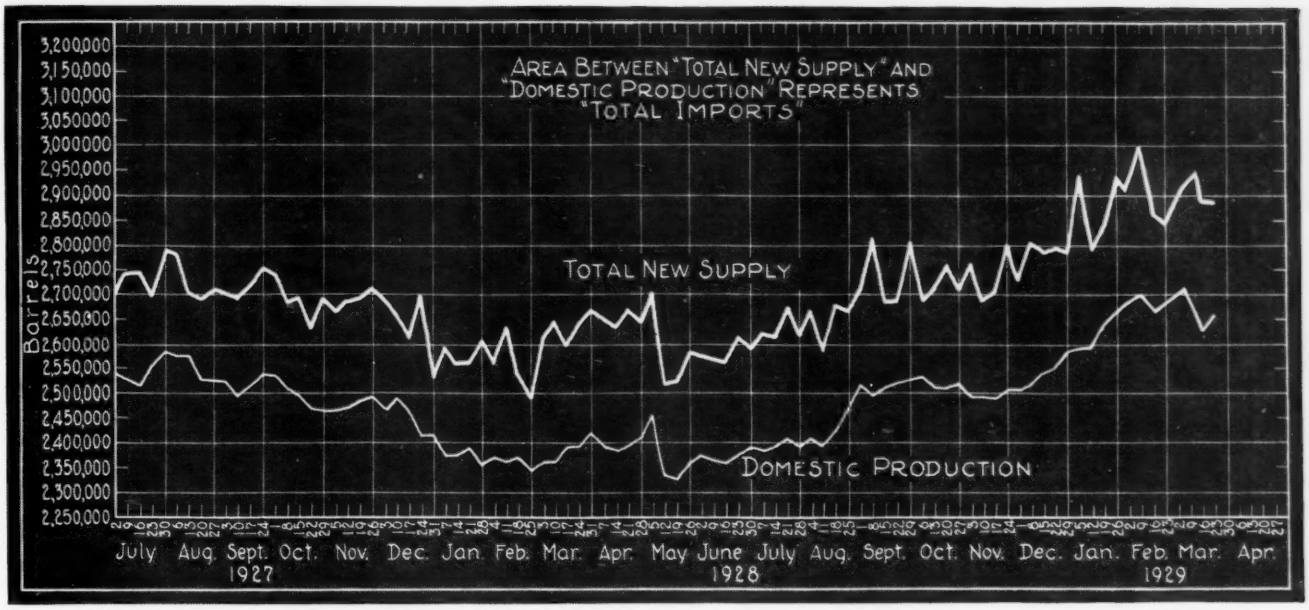
The company will build bulk storage and sell petroleum products retail and wholesale throughout the southeast.

H. Kimbrough is secretary and treasurer of the new company, and Hon. Clifford Walker is general counsel. Mr. Smitha is president.

Refiners Oil Leases Latto Station

UHRICHSVILLE, O.—O. U. Latto, former proprietor of the Latto Oil Co. here, has leased his business to the Refiners Oil Co., Dayton, O., that company purchasing all rolling stock and leased equipment outright.

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	Mar. 23	Mar. 16
Production east of Rockies	1,881,700	1,835,550
Increase		46,150
Total production in U. S.	2,655,600	2,625,150
Increase		30,450
Crude oil imports	222,571	253,000
Decrease		30,429
Total crude supply	2,878,171	2,878,150
Increase		21

OKLAHOMA

	Mar. 23	Mar. 16
Allen Dome	26,300	26,700
Blackwell	3,750	3,850
Bowlegs	35,850	33,350
Braman	3,300	3,350
Bristow-Slick	19,350	19,350
Burbank	22,400	22,500
Cromwell	7,700	7,700
Cushing	20,800	20,850
Davenport	1,500	1,500
Duncan District	6,600	6,600
Earlsboro	61,200	52,650
Fox	1,450	1,450
Garber	5,500	5,300
Braham	4,400	4,400
Healdton	13,000	13,000
Hewitt	8,250	8,250
Hubbard	2,000	2,000
Little River	80,500	70,000
Logan County	11,500	11,550
Maud	31,300	32,600
Mission	31,050	30,400
North Okmulgee	14,600	14,600
Oklahoma City	3,250	2,500
Osage (outside Burbbank)	25,450	25,450
Papoose	3,400	3,400
Pearson	1,700	1,700
St. Louis	100,650	93,800
Scholem-Alechem	12,700	12,750
Searight	10,750	9,500
Seminole	34,350	30,700
South Okmulgee	8,400	8,400
Thomas	900	900
Tonkawa	10,050	10,100
Wewoka	4,950	5,000
Yale-Jennings	7,200	7,200
Others	41,600	41,100
Total, Oklahoma	677,650	649,450
Increase		28,200

KANSAS

Augusta-Fox Bush	2,800	2,850
Churchill	7,150	7,100
El Dorado-Towanda	12,000	12,000
Florence-Covert	950	950
Greenwood County	20,500	21,200
Oxford	5,600	5,700
Peabody-Elbing	2,900	3,000
Rainbow Bend	1,000	1,000
Russell	3,100	3,150
Sedgwick County	10,950	10,900
Others	28,000	28,600
Total, Kansas	94,950	96,450
Decrease		1,500

NORTH LOUISIANA

Bellevue	650	650
Caddo, light	8,200	8,400
Caddo, heavy	3,350	3,250
Cotton Valley	3,000	3,000
De Soto and Red River	3,950	3,950
Elm Grove	600	600
Haynesville	5,450	5,500
Homer	4,000	4,000
Pleasant Hill	450	450
Urania	5,950	6,000
Others	250	250
Total, North Louisiana	35,850	36,050
Decrease		200

ARKANSAS

Champagnolle	10,100	9,750
El Dorado	4,600	4,550
Lisbon	1,450	1,500
Nevada	1,250	1,300
Smackover, light	6,350	6,450
Smackover, heavy	49,850	49,850
Stephens	1,000	1,000
Others	100	100
Total, Arkansas	74,700	74,500
Increase		200

TEXAS (Outside Gulf Coast)

Panhandle District

Carson County	6,000	5,700
Gray County	23,900	21,600
Hutchinson County	26,150	26,600
Wheeler County	600	650
Others	1,500	1,400
Total, Panhandle Texas	58,150	55,950
Increase		2,200

North Texas

Archer County	16,900	17,100
Burkburnett	9,200	9,100
Electra	12,950	12,800
Lowa Park and K. M. A.	5,600	5,750
Montague-Cooke	11,000	10,000
Wilbarger	27,500	26,500
Others	500	500
Total, North Texas	83,650	81,750
Increase		1,900

West Central Texas

Brown County	8,750	8,800
Callahan County	3,700	3,700
Coleman County	3,700	3,700
Eastland-Desdemona	6,650	6,700
Jack County	1,600	1,700
Palo Pinto County	400	400
Shackelford County	13,000	13,100
Stephens County	6,200	6,200
Throckmorton County	600	700
Young County	7,050	7,300
Others	700	700
Total, West Central Texas	52,350	53,000
Decrease		650

West Texas

	Mar. 23	Mar. 16
Crane and Upton Counties	50,050	49,600
Crockett County	2,200	2,250
Howard County	47,350	45,900
Jones County	6,200	6,000
Mitchell and Scurry Counties	2,850	2,900
Pecos County	86,700	87,100
Reagan County	18,400	18,500
Winkler County	168,900	166,600
Others	1,900	2,000
Total, West Texas	384,550	380,850
Increase		3,700

East Central Texas

Boggy Creek	3,200	3,250
Corsicana-Powell	8,300	8,400
Currie	500	450
Mexia	5,550	5,600
Nigger Creek	600	600
Richland	400	400
Wortham	1,250	1,200
Total, East Central Texas	19,800	19,900
Decrease		100

Southwest Texas

Dale	600	700
Laredo District	11,900	12,000
Luling	12,750	12,550
Lytton Springs	1,150	1,100
Salt Flat	36,700	31,050
Somerset	600	600
Others	4,950	5,150
Total, Southwest Texas	68,650	63,150
Increase		5,500
Total, Texas (Oustide Gulf Coast)	667,150	654,600
Increase		12,550

GULF COAST

Coastal Texas

Barbers Hill	6,600	6,550
Batson	1,500	1,400
Big Creek	4,200	4,650
Blue Ridge	3,850	4,050
Boling	2,000	2,100
Damon Mound	850	700
Goose Creek	6,300	6,450
Hull	10,200	10,650
Humble	5,450	5,500
Orange County	3,200	3,150
Pierce Junction	12,500	12,850
Raccoon Bend	2,050	1,850
Saratoga	950	950
Sour Lake	2,750	2,800
South Liberty	6,250	6,750
Spindletop	33,200	33,800
Sugarland	9,150	9,300
West Columbia	8,250	7,000
Others	8,900	8,500
Total, Coastal Texas	128,150	129,000
Decrease		850

Coastal Louisiana

East Hackberry	6,600	6,900
Edgerly	950	1,000
Evangeline	850	800
Lockport	4,150,	4,200
Sorrento Dome	450	500
Sulfur Dome	2,100	2,100
Sweet Lake	400	400
Vinton	4,350	4,500
Others	750	800
Total, Coastal Louisiana	20,600	21,200
Decrease		600
Total Gulf Coast	148,750	150,200
Decrease		1,450

ROCK MOUNTAIN

Wyoming

Big Muddy	2,350	2,350
Elk Basin	700	850
Grass Creek	2,250	2,150
Labarge	1,750	2,050
Lance Creek	250	300
Lost Soldier	3,250	3,500
Oregon Basin	2,800	2,550
Rock Creek	2,350	2,350
Salt Creek	34,200	28,450
Others	3,300	2,900
Total, Wyoming	53,200	47,450
Increase		5,750

Montana

Cat Creek	1,400	1,350
Pondera	3,400	2,300
Sunburst	5,300	5,450
Others	100	.....
Total, Montana	10,200	9,100
Increase		1,100

Colorado

Florence	1,050	1,350
Fort Collins	2,700	2,300
Moffat (Craig)	1,050	1,050
Others	2,250	2,050
Total, Colorado	7,050	6,750
Increase		300

New Mexico

Artesia	950	950
Hogback	500	500
Rattlesnake	1,150	700
Others	350	100
Total, New Mexico	2,950	2,250
Increase		700
Total, Rocky Mountain	73,400	65,550
Increase		7,850

CALIFORNIA

Dominguez	10,500	11,000
Elwood-Goleta	29,000	26,500
Huntington Beach	46,500	46,500
Inglewood	26,000	26,500
Kettleman Hills	3,400	3,400
Long Beach	185,500	185,000
Midway-Sunset	72,000	72,000
Rosecrans	7,000	6,500
Santa Fe Springs	157,000	175,000
Seal Beach	34,500	35,000
Torrance	15,000	15,000
Ventura Avenue	55,500	55,500
Others	132,000	131,700
Total, California	773,900	789,600
Decrease		5,700

EASTERN

	Mar. 23	Mar. 16
(Including Ill., Ind., Ky., O., W. Va., Pa., and N. Y.)	109,250	*108,750
Increase		500

*Revised

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended March 22 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended Mar. 22
Plants Reporting.....	12	29	25	13	12	91
Da. Av. Cap. (bbls.)..	92,000	160,200	86,600	76,500	54,900	470,200
Da. Cracking Capacity	30,700	52,600	17,200	.....	22,700	123,200
Da. Av. Crude Runs..	66,274 + 5.9	108,008 + 2.3	59,440 + 4.4	52,493 — 0.6	67,439 + 1.4	353,654 + 2.7
Da. Av. Other Oils ..	4,854 — 41 5	2,687 — 40 6	3,806 — 14.4	1,050 — 13.4	3,638 + 47.0	16,035 + 23.5
GASOLINE—Gallons						
Stocks, Mar. 15	32.427,000	71,656,000	21,961,000	6,550,000	9,294,000	141,888,000
Prod. 3-15 to 3-22...	9,226,000 — 9.7	16,617,000 + 2.2	7,181,000 — 2.9	3,701,000 — 8.7	6,715,000 + 2.2	43,440,000 — 2.4
Ship. 3-15 to 3-22....	10,481,000 + 19.7	15,931,000 + 2.0	7,606,000 — 4.9	3,048,000 — 18.8	7,810,000 — 0.5	44,876,000 + 2.0
Stocks, Mar. 22.....	31,172,000 — 3.9	72,342,000 + 1.0	21,536,000 — 1.9	7,203,000 + 10.0	8,199,000 — 11.8	140,452,000 — 1.0
Ratio Sales to Prod...	113.6%	95.9%	105.9%	82.4%	116.3%	103.3%
KEROSENE—Gallons						
Stocks, Mar. 15.....	3,598,000	6,090,000	1,744,000	100,000	625,000	12,157,000
Prod. 3-15 to 3-22....	2,143,000 + 10.7	2,598,000 + 7.1	1,671,000 + 7.9	25,000 — 50.0	660,000 + 18.9	7,097,000 + 14.6
Ship. 3-15 to 3-22....	1,868,000 — 5.8	2,087,000 — 4.7	1,664,000 + 21.5	16,000 — 5.9	458,000 + 19.6	6,093,000 + 2.5
Stocks, Mar. 22.....	3,873,000 + 7.6	6,601,000 + 8.4	1,751,000 + 0.4	109,000 + 9.0	827,000 + 32.3	13,161,000 + 8.3
Ratio Sales to Prod...	87.2%	80.3%	99.6%	64.0%	69.4%	85.9%
STOVE DISTILLATE—Gallons						
Stocks, Mar. 15.....	754,000	1,819,000	362,000	86,000	61,000	3,082,000
Prod. 3-15 to 3-22....	89,000 — 66.4	990,000 + 14.8	143,000 — 18.7	143,000 + 43.0	79,000 — 23.3	1,444,000 — 4.1
Ship. 3-15 to 3-22....	161,000 +151.6	555,000 — 22.2	89,000 — 29.9	81,000 — 30.8	62,000 — 21.5	948,000 — 13.8
Stocks, Mar. 22.....	682,000 — 9.5	2,254,000 + 23.9	416,000 + 14.9	148,000 + 72.1	78,000 + 27.9	3,578,000 + 16.1
Ratio Sales to Prod...	180.9%	56.1%	62.2%	56.6%	78.5%	65.7%
GAS OIL—Gallons						
Stocks, Mar. 15.....	5,809,000	13,925,000	4,837,000	12,935,000	3,565,000	41,071,000
Prod. 3-15 to 3-22....	1,886,000 + 0.8	1,376,000 — 13.6	911,000 + 3.3	1,487,000 + 22.0	1,991,000 — 17.9	7,651,000 — 4.2
Ship. 3-15 to 3-22....	1,368,000 + 1.8	1,021,000 — 45.7	521,000 — 25.3	894,000 — 21.3	1,807,000 — 12.1	5,611,000 — 21.1
Stocks, Mar. 22.....	6,327,000 + 8.9	14,280,000 + 2.5	5,227,000 + 8.1	13,528,000 + 4.6	3,749,000 + 5.2	43,111,000 + 5.0
Ratio Sales to Prod...	72.5%	74.2%	57.2%	60.1%	90.8%	73.3%
FUEL OIL—Gallons						
Stocks, Mar. 15.....	8,900,000	32,776,000	37,764,000	41,738,000	22,461,000	143,639,000
Prod. 3-15 to 3-22...	6,276,000 + 14.1	6,516,000 + 12.0	7,340,000 + 9.4	8,530,000 — 5.9	9,380,000 + 7.2	38,042,000 + 6.1
Ship. 3-15 to 3-22....	4,856,000 — 30.1	5,110,000 — 14.4	6,503,000 + 7.1	7,817,000 — 6.8	9,035,000 — 2.6	33,321,000 — 9.1
Stocks, Mar. 22.....	10,320,000 + 16.0	34,182,000 + 4.3	38,601,000 + 2.2	42,451,000 + 1.7	22,806,000 + 1.5	148,360,000 + 3.3
Ratio Sales to Prod...	77.4%	78.4%	88.6%	91.6%	96.3%	87.6%

Gasoline Produced by Various Methods, Week Ended March 22

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run.....	6,460,000	70.0	11,704,000	70.4	5,321,000	74.1	3,576,000	96.6	2,926,000	43.6	29,987,000	69.0
Cracked.....	2,217,000	24.0	4,158,000	25.0	1,465,000	20.4	.....	....	3,022,000	45.0	10,862,000	25.0
Natural.....	549,000	6.0	755,000	4.6	395,000	5.5	125,000	3.4	767,000	11.4	2,591,000	6.0
Total.....	9,226,000		16,617,000		7,181,000		3,701,000		6,715,000		43,440,000	

+ or — columns are % change over previous week.

Gasoline Stocks Are Lowered at 91 Refineries

Staff Special—By Telegraph
TULSA, March 26

THE first reduction of more than 1,000,000 gallons in gasoline stocks since Aug. 10, 1928, was reported for the week ended March 22 by the 91 Mid-Continent refineries that give this publication their weekly operations figures. Only twice since Aug. 10 have stocks been reduced, once in week ended Jan. 4 when the reduction was 900,000 gallons and once Sept. 21 when the reduction was 400,000 gallons.

Reduction in gasoline stocks in week ended March 22 amounted to 1,400,000 gallons. Gasoline production was less by 1,000,000 as compared with production in the week ended March 15. Shipments were up 900,000 gallons to 44,876,000 gallons.

A comparison of operating figures since this publication has been gathering them, shows that for each year

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended March 22. Change in stocks figured from Feb. 22.

	Gallons
GASOLINE	
Production	170,428,000
Shipments	164,443,000
Net change in stocks	+5,985,000
Ratio sales to production	96.5%
KEROSENE	
Production	24,701,000
Shipments	25,217,000
Net change in stocks	—516,000
Ratio sales to production	102.1%
STOVE DISTILLATE	
Production	6,254,000
Shipments	5,110,000
Net change in stocks	+1,144,000
Ratio sales to production	81.7%
GAS OIL	
Production	32,300,000
Shipments	30,432,000
Net change in stocks	+1,868,000
Ratio sales to production	94.2%
FUEL OIL	
Production	145,169,000
Shipments	142,752,000
Net change in stocks	+2,417,000
Ratio sales to production	98.3%

beginning with 1925 the peak gasoline stocks have been reached the third week in March with one exception. It also shows that while there were occasional drafts on stocks early in the year the definite stock reduction trend set in late in March or during the first week of April.

In 1925 the peak stocks for the year was reached for the week ended March 27 and the first sizable reduction in stocks occurred in the week ended April 4. In 1926 the peak of stocks was reached March 5 and the beginning of the spring demand with its resultant draft on stocks was in the week ended March 26. The peak of stocks in 1927 was reached March 25 with the first reduction of consequence in following week. Stocks reached their peak in 1928 March 23.

With such a record it may be reasonably safe to assume that the turning point has been reached for this year unless refiners boost crude runs considerably in the face of adverse weather.

Crude runs were increased 9000 barrels daily average. The daily average for the week was 353,654 barrels. This is the highest total since the week ended Sept. 28, 1928, but at that time the west Texas group of refiners was not being included in the summary.

Gasoline production was lower in spite of the increase in runs but fuel oil production was increased 6.1 per cent. Kerosene production was increased 14.6 per cent.

Kerosene production stepped ahead of shipments which were virtually unchanged. Stocks were increased 1,000,000 gallons. No district succeeded in drawing on stocks.

Stove distillate production and shipments were lower because of the lighter demand as the season drew nearer a close and stocks were increased almost 500,000 gallons. Kansas refiners were the only ones to draw any distillates from storage.

Gas oil production was off 300,000 gallons and shipments off 1,500,000 gallons. Stocks were increased 2,100,000 gallons to 43,111,000 gallons.

The increase in fuel oil production amounted to 2,200,000 gallons while shipments fell off 3,300,000 gallons causing an addition to stocks of 4,700,000 gallons. Stocks at the end of the week totaled 148,360,000 gallons.

S. O. New Jersey Using S.A.E. Numbers

CLEVELAND, March 23.—S.A.E. Viscosity Numbers are shown on packages of oil sold by the Standard Oil Co. of New Jersey, the Standard Oil Co. of Louisiana and the Standard Oil Co. of Pennsylvania. These three companies were not listed among the 89 oil companies which had adopted S.A.E. numbers up to March 6 as announced by A. J. Underwood, secretary of the society.

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BENZOYL CHLORIDE
BENZYL ALCOHOL
ANTIMONY TRICHLORIDE
FERRIC CHLORIDE
SULPHUR MONOCHLORIDE
SULPHUR DICHLORIDE
SULPHURYL CHLORIDE
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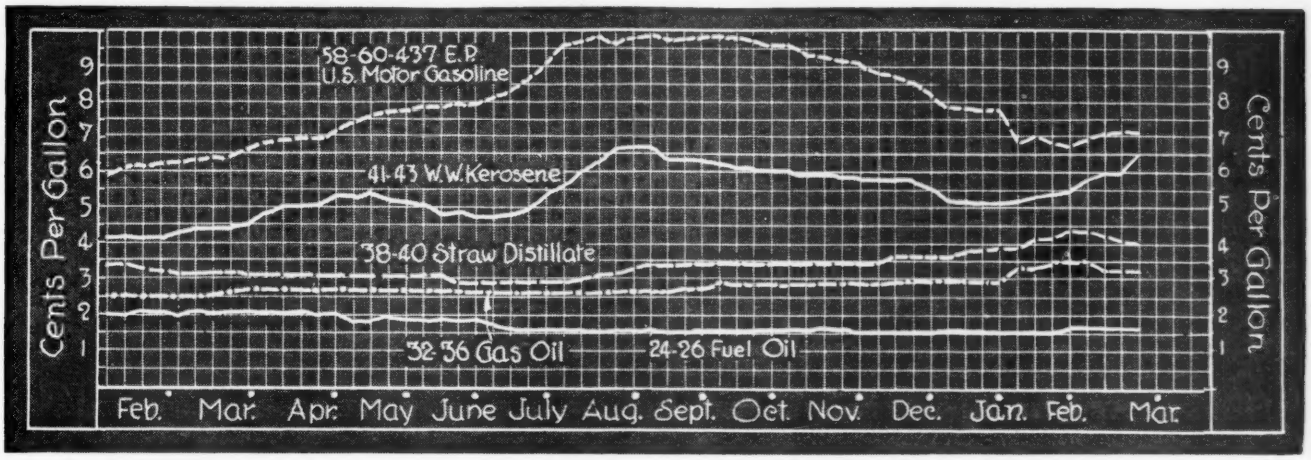
Refinery - Tank Wagon Markets

National Petroleum News

Current Prices of Principal Mid-Continent Refined Products


58-60-437 E.P.
U.S. Motor Gasoline
41-43 W.W. Kerosene
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Cents Per Gallon
Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.

Prices shown are on Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

Kerosenes, Gasolines and Naturals Active in Mid-Continent Area

Staff Special
TULSA, March 23

THE combination of both export and domestic demand and a 1-cent advance in tank wagon prices in Standard of Indiana territory caused kerosene prices in the Mid-Continent to advance during the week of March 18 to 23. The advances ranged from 0.125 to 0.50 cent a gallon.

Refined gasolines were generally unchanged in prices throughout the week but the demand remained sufficiently good for a majority of refiners to run only a relatively small amount to storage. An advance of 0.125 cent in price of 58-60 U. S. Motor effective March 25 was announced late in the week by several Oklahoma refiners.

Natural gasolines jumped upward a full cent a gallon as a result of an active demand for spot shipment. All grades were actively sought.

Distillates and gas oils were in lighter demand although prices were generally unchanged. Fuel oils were steady in demand and only slight changes were noted in prices.

Refiners making neutral oils, cylinder stocks and waxes reported demand only fair.

Kerosene

An exporter early in the week bought 500,000 gallons of 41-43 gravity kerosene in north Texas at 6 cents a gallon. The buyer was understood to have inquired for more goods in that district without success. Inquiries were sent into the field later in the week by one or two other buyers but no definite purchases were reported.

The active domestic demand meanwhile caused tank car prices for kerosene to move upward fractionally. The spread between the delivered price and the tank wagon price in many cities was uncomfortably narrow for jobbers. This situation was relieved March 23 when the Standard Oil Co. of Indiana advanced tank wagon price for kerosene 1 cent.

The advance in the tank wagon price caused an immediate advance in tank car prices in the Mid-Continent. Kansas and Oklahoma refiners announced quotations 0.125 to 0.25-cent higher as did the north Texas refiners. The Arkansas and Louisiana refiners announced advances of 0.125 to 0.50-cent a gallon.

Some of the active demand, while coming indirectly from the domestic trade, was in reality from refiners who do not make an appreciable amount of kerosene, but who protect their contract customers by buying from other refiners.

Gasolines

The improved demand for gasolines which has been felt in the Mid-Continent since around the first of the month caused prices of 58-60 U. S. Motor to draw nearer the 7 to 7.25-cent range during the past week. A few small refiners who must depend on outside selling agencies to move a large portion of their goods reported orders were easier to obtain at higher prices than they had been the previous week.

Virtually no gasoline was moved late in the week from Oklahoma plants at under 6.75 cents a gallon, although there were a few quotations reported on a Group 3 basis with the gasoline being shipped from the re-

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A NEW and real good barrel pump by Gilbert & Barker at a remarkably low price. Soundly built—it should give years of dependable every-day service. Attractive and thoroughly modern in design. Fits any barrel with 1½" to 2" opening. Also available with swing return tube. Immediate shipment can be made from conveniently located warehouses. Write for prices.

GILBERT AND BARKER MANUFACTURING COMPANY
PUMPS AND TANKS FOR THE OIL TRADE
SPRINGFIELD, MASS.

"What About The OILGRAM?"

—asked the executive of a gasoline company on the west coast recently of a Tulsa oil man. His answer was . . .

"If you were to wire me for Mid-Continent gasoline prices today, I would phone a member of the OILGRAM staff, and my reply to you would be the *gist of what he told me*. The OILGRAM staff is in direct and close contact with the markets almost every hour of the business day. *They know their business.*"

You too, can have the benefit of this close contact with all phases of the market at all the principal refining and marketing centers.

The service costs only $25 a quarter, or $75 a year, payable in advance. Approximately 30 cents a day—less than the cost of one wire or one phone call.

Avail yourself of this fast, daily market service today—send your order with check to the nearest mailing point.

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CHICAGO—35 East Wacker Drive
NEW YORK—342 Madison Avenue
CLEVELAND—1213 West Third St.

finery districts outside of Oklahoma.

A majority of refiners who for the past several weeks had been selling their U. S. Motor at 7 cents a gallon notified their branch offices that effective Monday, March 25, the quotations would be 7.125 cents a gallon.

Very little deferred shipment business was reported during the week. Jobbers seeking gasoline on this basis were generally quoted 7 to 7.25 cents for specification Oklahoma goods.

The milder weather caused a slight let up in demand for higher gravity gasolines but the prices were generally unchanged.

West Texas refiners continued to ship a good percentage of their production on orders booked some time previously, and only small amounts were moved into the Standard of Indiana territory in competition with Oklahoma goods.

Natural Gasolines

Demand for grade AA which was to be applied on contract orders caused a rapid advance in prices. One large manufacturer who has several contracts for grades BB and C increased his production of grade AA, sold it, and accordingly entered the market for grades BB and C to apply on his orders. The bulk of the grade AA bought was shipped to Gulf coast points.

The Shell Petroleum Corp., one of the largest buyers of natural gasolines in the Mid-Continent was reported to have made some new contracts recently based on the price market date of shipment with minimum and maximum tops based on U. S. Motor. The amount involved in the contracts was not learned. The company the past year had been buying on contract, market date of shipment price of grade A.

It was not known definitely if the former contracts had been cancelled or if the company was planning to buy even a larger quantity than it has bought the past year. It will be recalled that about two years ago the company bought approximately 1500 cars a month in the Mid-Continent for shipment to the then New Or-

Correction

On page 232 of the March 20 issue of NATIONAL PETROLEUM NEWS, the price of Oklahoma Grades B and BB natural gasolines, as of March 18, should have been 6-6.50 cents, instead of 6.50 cents, representing quotations and offers to buy.

Prices as of March 11, in the March 20 and March 13 issues, pages 232 and 104 respectively, of Oklahoma and North Texas Grades A and AA natural gasolines should have been 6.75-7 cents, instead of 6.75-6.875 cents.

Above prices are corrected under the proper dates in the refinery table of this issue.

leans Refining Co. Last year this amount was cut down to around 800 cars a month and the company was supposed to have arranged to get the additional gasoline from California.

One report indicated that the company was enlarging its refining capacity in Venezuela and accordingly will need more natural gasoline in the future. Another report indicated the company had not found the arrangement for California gasoline as satisfactory as had been anticipated.

Distillates and Gas Oil

Demand for both distillates and gas oils was lighter the past week. Refiners reported their jobber accounts were taking only a small amount of distillates on contract. A continuance of the mild weather through the Middle West will mean the virtual end of the distillate season within the next two or three weeks.

Gas oil continued to be in fair demand from refiners with cracking units but the buying was not sufficiently heavy to keep pace with production.

Fuel Oils

Inquiries were received for fuel oil quotations for delivery over April. No changes were noted in the spot market and as far as could be learned quotations for over April were approximately the same as those made for spot shipment. Production and shipments continued about on an even keel.

Middle West Railroads Use More Fuel Oil

NEW YORK, March 23.—Almost 1,500,000 more barrels of fuel oil were consumed by locomotives of the principal railroads in the United States in 1928 than in 1927, according to returns received from railroads by the American Petroleum Institute.

A total of 60,371,000 barrels of fuel oil was consumed in 1928, compared with 58,904,000 barrels in 1927. The largest consumption was in the middlewestern and southwestern districts, which used 31,162,000 barrels in 1928, compared with 29,507,000 barrels in 1927.

The eastern district used the least, with 125,000 barrels, compared with 127,000 barrels in 1927.

Only 129,000 barrels of the fuel oil used in the middlewestern and southwestern districts was foreign fuel oil, the rest being domestic. In the eastern district, however, 108,000 barrels was foreign fuel in 1928, while only 17,000 barrels was domestic.

Chicago Resale Market

Kerosene Prices Are Higher

Staff Special
CHICAGO, March 23

THE 1-cent advance in tank wagon kerosene by the Standard of Indiana March 23 and the subsequent advance in spot tank car market kerosene prices were the features of the week in the Chicago market. Immediately following the Standard's advance, nearly all Chicago refiners and carlot marketers advanced their spot prices on kerosene 0.25 or 0.375 cent.

The demand for kerosene was better this week in most quarters. Kerosenes were comparatively scarce and several refiners reported they were out of the market. Two or three refiners were buying kerosene to fill their orders and this buying helped to keep distress goods off the market.

Most sales of 41-43 water white kerosene were at 6 to 6.25 cents until March 22, when practically all the 6-cent goods were off the market. March 23, the bulk of sales reported was at 6.25 to 6.375 cents and a number of sellers were quoting as high as 6.625 cents for this grade.

The gasoline market continued the upward trend in price which has been apparent for the last month and late in the week major Oklahoma refiners generally advanced their gasoline prices 0.125 cent, bringing their price on 58-60 U. S. Motor to 7.125 cents. This is the first change by most of these refiners since they reduced their quotations to 7 cents. Most of the smaller refiners and carlot marketers continued to ask 6.875 and 7 cents, for their Oklahoma U. S. Motor, with the majority of them getting 7 cents.

U. S. Motor out of north Texas moved mostly at 6.875 to 7 cents, f.o.b. Group 3 basis. West Texas U. S. Motor was quoted mostly at 6.75 to 6.875 cents, Group 3 basis. Marketers reported they could buy some U. S. Motor for over April at 7 cents.

A number of sellers reported a better gasoline demand this week while others said their movement was light. A number of refiners reported that their contract customers were taking more interest in the market and had ordered out more gasoline this week than for some time.

The Chicago postoffice gasoline contract, calling for approximately 225,000 gallons of U. S. Motor specification gasoline for delivery over the second quarter of 1929, was let during the week. The Seneca Petroleum Co. were the successful bidders. Their bid named a price of 0.125 cent below the average U. S. Motor price shown in the Chicago Journal of Commerce, date of shipment, with an additional 0.50 cent allowed for handling and 1 per cent off for cash in 10 days. The maximum named was 8.50 cents for the quarter. The postoffice always buys on a f.o.b. Group 3 basis, as it is allowed land grant rates and its freight is only about 1.50 cents a gallon.

Little change was apparent in the higher gravity gasolines. Some sellers advanced their prices in line with U. S. Motor, while the majority were unchanged. The 60-62, 437 e. p. gasoline moved mostly at 7 to 7.25 cents; 60-62, 400 e. p. at 7.25 to 7.50 cents, and the 64-66, 375 e. p. at 7.75 to 8 cents.

The approaching end of the burner oil season was making itself felt and distillate prices were off approximately 0.25 cent. Demand was quiet in most quarters. The 38-40 straw moved mostly at 4 to 4.125 cents March 23 after opening March 18 at 4.125 to 4.25 cents.

Gas oils were not getting a heavy play and prices were about 0.125 cent lower. The ordinary 32-36 dark grade moved mostly at 3.125 cents March 23 as against 3.125 to 3.25 cents previously. The 32-36 dark zero was unchanged at 3.125 to 3.25 cents. Most sales of 32-36 straw zero were at 3.25 to 3.375 cents until March 20 and at 3.25 cents flat thereafter.

Fuel oils were generally unchanged in both price and demand, although one or two grades were quoted fractionally lower by a few sellers. Prices prevailing over the week were $1.10 to $1.175 for 28-30 zero fuel; $0.90 for ordinary 28-30 fuel; $0.65 to $0.70 for 24-26; $0.60 to $0.65 for 18-22 low sulfur and $0.55 to $0.60 for 18-22 high sulfur.

Occasional rains are forecast for all next week in Standard of Indiana territory. Temperatures will be near normal.

CHICAGO, March 23.—Announcement was made by Phil A. Taxman that the Taxman Refining Co.'s plant at Wichita Falls, Texas would re-open on April 1. The Taxman refinery has been closed while their Cross cracking units were being remodeled and a new pipe still, capable of running 5000 barrels of crude daily, was being constructed. Storage capacity has been increased about 165,000 barrels.

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

Weighted Average Prices

OKLAHOMA (Weighted Average Prices)

	Prices Mar. 25	Prices Mar. 18	Prices Mar. 11
58-60 U.S. Motor, 437 e.p.	7.0490	7.0059	6.9945
60-62 437 e.p. gasoline...	7.2583	7.2446	7.2845
60-62 400 e.p. gasoline...	7.6458	7.3750	7.5000
64-66 375 e.p. gasoline...	8.2500	8.0000	8.0000

All above weighted average prices are effective on Monday on the dates shown at the top of the columns.

Oklahoma refiners for the most part obtained 7 cents or more for their 58-60 U. S. Motor during the past week. A few of the smaller plants accepted some business at under 7 cents a gallon, but their sales were small in proportion to the volume moved at 7 cents and above that the weighted average prices during the week were slightly above 7 cents.

Several Oklahoma refiners announced an advance of 0.125 cent in quotations effective Monday, March 25, but this advance was not reflected in the above weighted averages, these figures having been complied from sales reports obtained for March 23 business. The advance probably will not be reflected in the weighted averages much before Tuesday or Wednesday.

KANSAS (Weighted Average Price)

	Prices Mar. 25	Prices Mar. 18	Prices Mar. 11
58-60 U.S.Motor 437 e.p.	7.3304	7.2431	7.1923

Refiners in Kansas found less competition during the past week and enjoyed a slightly increased demand for 58-60 U. S. Motor. The prices obtained for gasoline for shipment within the state were from 7.125 to 7.3125 cents a gallon, or approximately 0.25 cent above the Oklahoma prices.

(The Oklahoma weighted average prices above are made up from confidential daily reports on all gasoline spot market sales—for shipment in 10 days—from Oklahoma refineries representing 91.8 per cent of the state's refining capacity. The Kansas weighted average prices above are made up from confidential daily reports of all gasoline spot market sales from Kansas refineries representing 58 per cent of the state's operating capacity. The above prices do not include prices on sales for "over the month," for contracts, or to brokers or on shipments to company owned stations. Records of the reporting refiners are checked periodically to verify the accuracy of their reports.—Editor)

OKLAHOMA	Prices Mar. 25	Prices Mar. 18	Prices Mar. 11
48-50 450 e.p. naphtha...	†6.75 – 6.875	†6.50 – 6.75	†6.50 – 6.75
50-52 450 e.p. naphtha...	†6.75 – 6.875	†6.50 – 6.75	†6.50 – 6.75
56-58 450 e.p. gasoline...	6.875	6.75 – 6.875	6.75 – 6.875
58-60 450 e.p. gasoline...	6.875– 7.00	6.875– 7.00	6.875– 7.00
64-66 390 e.p. gasoline...	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75
68-70 350-360 e.p. gasoline	8.50	8.25 – 8.50	8.00 – 8.50
PENNSYLVANIA			
52-54 Naphtha.....	8.25 – 8.50	8.25 – 8.50	8.25 – 9.00
54-56 Naphtha.....	8.25 – 8.75	8.50 – 8.75	8.25 – 9.00
58-60 U.S. Motor 437 e.p.	8.50 – 9.50	8.50 – 9.50	8.75 – 9.25
60-62 400-410 e.p. gasoline	9.00 –10.00	9.00 –10.00	9.25 –10.00
64-66 390 e.p. gasoline...	9.75 –10.00	9.50 –11.00	9.75 –11.00
68-70 Str-run gas 350-360 e.p.....	10.50 –11.00	10.50 –12.00	10.50 –11.50

OHIO (Quotations of S. O. Ohio. 3c state tax to be added.)

‡U. S. Motor Gasoline: Cleveland, Toledo, and Lima switching districts	10.00	9.75	9.75
Elsewhere in Ohio.....	10.25	10.00	10.00

‡Winter specification.

KANSAS (F. O. B. refinery Kansas destination)

60-62 400 e.p. gasoline...	7.875– 8.00	7.875	7.75
64-66 375 e.p. gasoline...	8.375– 8.50	8.375– 8.50	8.25 – 8.50

NORTH TEXAS	Prices Mar. 25	Prices Mar. 18	Prices Mar. 11
48-52 450 e.p. naphtha...	†6.25	†6.25	†6.25
56-58 450 e.p. gasoline...	†6.375	†6.375	†6.25
58-60 450 e.p. gasoline...	6.50	6.50	†6.25
58-60 U.S. Motor 437 e.p.	6.875– 7.00	6.875– 7.00	6.75 – 7.00
60-62 400 e.p. gasoline...	7.25	7.25	7.25
64-66 390 e.p. gasoline...	7.50	7.50	7.375
64-66 375 e.p. gasoline...	7.75 – 7.875	7.75 – 7.875	7.75 – 7.875
68-70 350-360 e.p. gasoline	7.75 – 8.25	7.75 – 8.25	7.75 – 8.25
****WEST TEXAS (F.o.b. West Texas refinery, for unrestricted shipment)**			
50-52 naphtha.....	6.00	6.00	5.875
56-58, 437 e.p. gasoline..	6.125	6.125	6.00
58-60, 437 e.p. gasoline...	6.50	6.50	6.375– 6.50
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
58-60 U.S. Motor gasoline	7.25	7.25	7.25
ARKANSAS (Arkansas destination only)			
56-58 450 e.p. gasoline...	.....	6.50	6.50
58-60 450 e.p. gasoline...	7.00	6.75	6.75
58-60 U.S. Motor 437 e.p.	7.25	7.25	7.25
61-63 390 e.p. gasoline...	7.375	.....	.....
‡CALIFORNIA			
54-58 U.S. Motor 437 e.p.	8.50 – 9.50	5.50 –7.50	5.75 – 8.50
58-61 375-400 e.p. gasoline	9.50 –10.50	7.50 –8.50	7.00 – 8.50
42-45 Eng. dis. 445-480 e.p.....	9.50 –10.50	7.50 – 8.50	7.50 – 8.50

‡3c tax to be added to California gasoline prices if used in state.

Comparative Prices of 58-60 U. S. Motor Gasoline, Group 3 and Point of Origin, to Jobbers Only, in Effect Mar. 25

	Price F.O.B Group 3	Price F.O.B. Point of Origin	If for Particular Destination
Oklahoma	7.0490 (Wt. Avg.)	7.0490 (Wt. Avg.)	..... S. O. Neb. & Ind. Territories, etc.
Kansas	7.00-7.125	.....	
Kansas	.....	7.3304 (Wt. Avg.)	Kansas only.
North Texas	6.875-7.00	6.875-7.00	.....
West Texas	6.75-6.875	6.50	.....
Louisiana-Ark.	7.00	.....	Mich., Ohio & Indiana.
Louisiana-Ark.	.....	7.25	State or differential haul.
Indiana-Illinois ..	7.125	.....*	S. O. Ind. territory except Detroit and vicinity. For Ohio on delivered basis only.

*Shipments made from E. Chicago, Ind., and Wood River, Ill., according to conditions and freight rates; no prices F.O.B. point of origin can be given.

Note—The above comparative price basis given for the convenience of the trade. We have endeavored for the past several years to cause the trade to appreciate the difference between prices quoted f.o.b. Group 3 where the product originates and as shipped from a refinery district outside of Oklahoma. As the trade still persists in basing prices on products to be shipped from points outside of Oklahoma, Group 3, we give the above table for its convenience.

However, in giving the above prices, please note particularly not only the point of origin, but the destination of the shipments. Prices, especially from those districts outside of Group 3 Oklahoma, vary quite materially according to the marketing district into which the gasoline is to be shipped. The prices that we give in the above table are for the best known marketing districts to which these refiners ship but, owing to the wide variation in freight rates and marketing conditions in the various districts, we do not guarantee any of the above prices.

†Prices nominal ††Only one refiner quoting *Quotations only **Represents Both Sales and Quotations.

When You Compare These Prices, Please

In interpreting and comparing the prices on these pages the industry must do so fairly and, in turn, accurately.

Please Note—

1st—The date of these prices and those with which you compare them.

2nd—The source of origin of the material—that is the actual geographical district from which the material will really be shipped.

3rd—The destination of the goods which has a great deal to do with the price.

4th—The specifications of the material. There is not much off specification stuff on the market but what little there is is not always identified as such and the price that it bears generally gets a lot of free advertising.

5th—The terms of the sale. Prices given herein, except where otherwise noted, are for spot sale and shipment within ten days. Other terms will make a difference in the price.

6th—The quantity that is available, or is sold, at a given price. Generally the bottom price of the market—and oftentimes the top price too—has only one or two cars moving on it. When the seller who has offered those particular cars has sold them, he and his low price are generally out of the market.

7th—These prices are records of sales actually made, or if no sales, then they are quotations by reputable companies on the days noted. They are arrived at at the close of the business day. What the prices will be on the next day depends entirely upon what the seller and buyer do. These prices are the history of yesterday. Tomorrow is a new day.

7th—Please note—These prices are records of sales made

What many oil men have not fully realized is that the record of prices published is made from sales that have ALREADY BEEN MADE. What they show is what HAS HAPPENED. What will happen during today and tomorrow remains to be seen. A price record is necessarily history. Practically no industry operates with quotations out any length of time.

Some petroleum products do not move regularly every day and where they do not a fair average of quotations for that day are given and the price quoted is so labeled.

You some times hear a big buyer say that he can go into the market and buy at less than the prices shown. Quite right probably. The reason is that the big buyers are not in the market every day. They are in at irregular intervals. When they go in the price generally drops, providing they buy in the open spot market for prompt shipment which they seldom do. When the big buyer has been in the spot market, his price is shown in our prices at the end of the day. But a price reporting agency has to wait for the buyers to buy before it can show what they bought at, a little matter that some of these big buyers overlook.

The price records of all stock and commodity exchanges are of transactions that are CLOSED. They can't well be anything else and be of any value to the interested parties.—Editor.

Refinery Markets on Wax, Lubricants and Heavy Oil Products, (Continued)

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA	Prices Mar. 25	Prices Mar. 18	Prices Mar. 11
Grade AA, 80-87.9, 90% Recovery	*8.00	7.50	6.75 – 7.00
Grade A, 72-79.9, 90% Recovery	*8.00	7.50	6.75 – 7.00
Grade BB, 84-92, 85% Recovery	*7.00	***6.00– 6.50	**5.50
Grade B, 76-83.9, 85% Recovery	*7.00	***6.00– 6.50	**5.50
Grade C, 80-92, 78% Recovery	*6.75	6.00	**5.25
NORTH TEXAS (F. O. B. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery	*8.00	7.50	6.75 – 7.00
Grade A, 72-79.9, 90% Recovery	*8.00	7.50	6.75 – 7.00
Grade BB, 84-92, 85% Recovery	*7.00	***6.50	**5.50
Grade B, 76-83.9, 85% Recovery	*7.00	***6.50	**5.50
Grade C, 80-92, 78% Recovery	*6.75	6.00	**5.25
NORTH LOUISIANA (F. O. B. Monroe District)			
Grade AA	†8.125	†7.50	†7.50
Grade BB	†7.125	†6.25	†6.00
Grade C	†6.875	†6.00	†5.50
CALIFORNIA			
75-85, 375-390 e.p. blend	9.50 –10.00	5.50 – 6.50	5.00 – 6.00

MOTOR FUEL BLENDS

OKLAHOMA	Prices Mar. 25	Prices Mar. 18	Prices Mar. 11
64-66 Blend 437 e.p.	6.75	6.75	6.75

BURNING OILS

PENNSYLVANIA			
45 w.w. kerosene	7.00 – 7.50	7.00 – 7.375	7.00 – 7.50
46 w.w. kerosene	7.50 – 8.00	7.50 – 7.75	7.375– 7.75
47 w.w. kerosene	7.75 – 8.50	7.75 – 8.25	7.75 – 8.00
300 mineral seal	7.25 – 7.50	7.25 – 7.50	7.25
OKLAHOMA			
41-43 w.w. kerosene	6.50	6.00	6.00
42-44 w.w. kerosene	7.00	6.50	6.50
KANSAS (F. O. B. refinery Kansas destination)			
41-43 w.w. kerosene	6.50 – 6.75	6.125	6.125
42-44 w.w. kerosene	7.00	6.625	6.625
NORTH TEXAS			
40-42 w.w. kerosene	6.125	5.50	5.50
41-43 w.w. kerosene	6.25 – 6.50	5.875– 6.00	5.75 – 6.00
NORTH LOUISIANA (N. La., Ark and Miss. destination)			
41-43 w w. kerosene	6.50 – 6.75	6.25 – 6.50	6.50
42-44 w.w. kerosene	6.75	6.625	††6.625
ARKANSAS (Arkansas destination only)			
42-44 kerosene	6.75	6.625	6.625
CALIFORNIA			
38 40 w.w. kerosene	6.00 – 7.00	5.50 – 6.50	6.00 – 6.50

†Prices nominal ††Only one refiner quoting *Quotations only **Represents both sales and quotations ***Represents quotations and offers to buy

Refinery Markets on Wax, Lubricants and Heavy Oil Products

Prices given below are in cents per gallon, F. O. B. refinery except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

NEUTRAL OIL

PENNSYLVANIA	Prices Mar. 25	Prices Mar. 18	Prices Mar. 11
Vis.	(Viscosity at 70°F.)		
200 No. 3 Assoc. Filt.	27.50 –29.50	27.50 –29.50	27.50 –29.00
180 No. 3 Assoc. Filt.	25.00 –26.50	25.50 –26.00	25.00 –26.00
150 No. 3 Assoc. Filt.	21.25 –22.00	21.25 –22.00	21.50 –22.00
	(Non Viscous)		
34 Grav. 330-340 Flash	7.25 – 8.00	7.25 – 8.00	7.25 – 8.00

****OKLAHOMA**

Vis. Color	(Viscosity at 100°F.)		
100—No. 2	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00
150—No. 3	7.50 – 8.50	7.50 – 8.50	7.50 – 8.50
150—No. 4	6.50 – 7.50	6.50 – 7.50	6.50 – 7.50
180—No. 3	8.75 – 9.50	8.75 – 9.50	8.75 – 9.50
180—No. 4	8.75 – 9.75	8.75 – 9.75	8.75 – 9.75
180—No. 5	8.50 – 9.50	8.50 – 9.50	8.50 – 9.50
200—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200—No. 4	9.25 –10.00	9.25 –10.00	9.25 –10.00
200—No. 5	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
220—No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4	12.25 –12.50	12.25 –12.50	12.25 –12.50
220—No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240—No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
240—No. 4	12.00 –13.00	12.00 –13.00	12.00 –13.00
240—No. 5	11.00 –13.00	11.00 –13.00	11.00 –13.00
280—No. 3	14.00 –15.50	14.00 –15.50	14.00 –15.50
280—No. 4	13.00 –14.00	13.00 –14.00	13.00 –14.00
280—No. 5	12.00 –13.00	12.00 –13.00	12.00 –13.00
300—No. 5-6	15.00 –17.00	15.00 –17.00	15.00 –17.00

GULF COASTAL

Vis. Color	(Viscosity at 100°F., pour test 0)		
100—No. 2 Pale	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
200—No. 3 Pale	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
300—No. 3 Pale	10.00 –10.50	10.00 –10.50	10.00 –10.50
500—No. 3½ Pale	12.00 –12.50	12.00 –12.50	12.00 –12.50
750—No. 4 Pale	14.00 –14.50	14.00 –14.50	14.00 –14.50
200—No. 5½ Red Oil	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
300—No. 5½ Red Oil	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
500—No. 6 Red Oil	10.00 –10.50	10.00 –10.50	10.00 –10.50
750—No. 6 Red Oil	12.50 –13.00	12.50 –13.00	12.50 –13.00

CALIFORNIA

Vis. Color	(Viscosity at 100°F.)		
100—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200—No. 3	11.50	11.50	11.50
300—No. 3	13.00	13.00	13.00
450—No. 3	15.50	15.50	15.50
550—No. 3	16.50	16.50	16.50
600—No. 3	17.00	17.00	17.00
200—No. 5	11.00	11.00	11.00
300—No. 5	12.00	12.00	12.00
400—No. 5	14.00	14.00	14.00
500—No. 5	15.00	15.00	15.00
600—No. 5	16.00	16.00	16.00
700—No. 7	18.00	18.00	18.00

CYLINDER STOCKS

****OKLAHOMA**

190-200 Vis. at 210°Brt. St.	33.00	33.00	33.00
150-160 Vis at 210° Brt. St.	31.00	31.00	31.00
600 E. St. 140-150 Vis.-210°	18.00 –19.00	18.00 –19.00	18.00 –19.00
600 St. Ref. Olive Green	10.00 –12.00	10.00 –12.00	10.00 –12.00
600 St. Ref. Dark Green	8.00 –10.00	8.00 –10.00	8.00 –10.00
Black Oil	5.00	5.00	5.00

PENNSYLVANIA	(A. S. T. M. Tests)		
600 Steam Refined dark	.....	.....	‡‡22.00
600 Steam Refined, filterable	‡25.00	23.00 –24.00	22.50 –24.00
650 Steam Refined	***	29.00 –30.00	28.50 –29.50
600 Flash	‡33.00	30.50 –33.00	30.00 –33.00
625 Flash	‡37.00 –38.00	‡36.00	‡36.00 –37.00
600 Warren E	***	‡‡25.00–26.00	‡25.00
600 Oil City E	‡26.00	‡24.50 –27.00	‡27.00
600 D Filtered	‡30.00	‡29.00	29.00 –29.50
Cold Test Stock, 40-50p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	40.00 –41.00	39.50 –41.00	39.00 –41.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	39.00 –40.00	37.50– 40.00	38.00 –39.00

‡One seller quoting, limited quantity. ‡‡Two sellers quoting. ***No quotations.

WAX

PENNSYLVANIA Per pound, New York

	Prices Mar. 25	Prices Mar. 18	Prices Mar. 11
122-124 white crude scale, a. m. p.	3.75 – 4.00	3.75 – 4.00	3.625– 4.00
124-126 white crude scale, a. m. p.	‡4.00	‡4.125– 4.25	3.75 – 4.125

‡One seller quoting.

OKLAHOMA			
**124-126 White Crude Scale, a. m. p.	3.75 – 3.875	3.875– 4.00	3.75 – 4.00
CALIFORNIA			
White crude scale, per pound, ton lots, a. m. p.	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50

FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)			
36-40 fuel oil	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
30-34 fuel oil	4.75	4.75 – 5.00	4.75 – 4.875
28-32 fuel oil	4.75	4.75 – 5.00	4.75
OKLAHOMA			
38-40 straw distillate	†4.00	†4.00 – 4.125	†4.25
36-38 straw distillate	†3.875– 4.00	†3.875– 4.00	†4.00 – 4.25
32-36 gas oil, straw	‡3.25	‡3.25	‡3.25
32-36 dark gas oil	‡3.00 – 3.125	‡3.00 – 3.125	‡3.00 – 3.125
28-30 fuel oil (in bbls.)	†$1.00– 1.10	†$0.975– 1.10	†$1.20 – 1.25
26-28 fuel oil (in bbls.)	$0.725– 0.825	$0.725– 0.825	$0.725– 0.825
24-26 fuel oil (in bbls.)	$0.675	$0.675	$0.675
22-26 fuel oil (in bbls.)	$0.575– 0.625	$0.575– 0.625	$0.575– 0.625
18-22 fuel oil (in bbls.)	$0.55 – 0.575	$0.55 – 0.575	$0.55 – 0.575
16-18 fuel oil (in bbls.)	$0.50 – 0.55	$0.50 – 0.55	$0.55
14-16 fuel oil (in bbls.)	$0.50	$0.50	$0.50 – 0.55

‡Zero cold test gas oil sells for 0.25 cent higher.

KANSAS (F. O. B. refinery Kansas destination)			
38-40 straw distillate	4.125	4.25	4.375– 4.50
36-38 straw distillate	4.00	4.125	4.25
32-36 gas oil	3.25	3.25	3.25
24-26 fuel oil	*$0.90	*$0.90	*$0.90
18-22 fuel oil	*$0.75	*$0.75	*$0.75
NORTH TEXAS			
38-40 straw distillate	4.00	4.00	4.00 – 4.25
32-36 gas oil, cracked	3.00	3.00	3.00
32-36 St. reduced gas oil	3.25	3.25	3.25
24-26 fuel oil (in bbls.)	$0.725– 0.75	$0.725– 0.75	$0.725– 0.75
20-24 fuel oil	$0.70 – 0.725	$0.70 – 0.725	$0.70 – 0.725
****WEST TEXAS (F. o. b. West Texas refinery, for unrestricted shipment)**			
34-38 gas oil	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
30-32 gas oil	2.875– 3.00	2.875– 3.00	2.875– 3.00
18-22 fuel oil	$0.35 – 0.45	$0.35 – 0.45	$0.35 – 0.45
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
32-36 gas oil, dark	3.125	3.375	3.50
32-36 gas oil, straw	3.25	3.50	3.50
16-20 fuel oil (in bbls.)	$0.725	$0.725	$0.725
ARKANSAS (Arkansas destination only)			
32-36 gas oil, straw	3.375	3.50	3.50
32-36 gas oil	3.375	3.375	3.50
28-32 gas oil	3.25	3.25	3.25
CALIFORNIA (F. O. B. San Joaquin Valley. At San Francisco, 4c per bbl. more)			
14-18 fuel oil (per bbl.)	$0.50 –$0.65	$0.50 –$0.65	$0.50 –$0.70
14-18 Bunker oil (per bbl.)	$0.70 –$0.85	$0.70 –$0.85	$0.70 –$0.85
30-34 gas oil (per bbl.)	$0.95 –$1.05	$0.95 –$1.05	$0.95 –$1.05
27 Plus Diesel oil (per bbl.)	$0.90 –$1.00	$0.90 –$1.00	$0.85 –$1.00

PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f. o. b. refinery. In tank cars ⅝c to ¾c per pound less.) Two refiners quoting.

Snow White	8.50	8.50	8.50
Lily White	7.50 – 7.625	7.50 – 7.625	7.50 – 7.625
Cream White	6.50 – 6.625	6.50 – 6.625	6.50 – 6.625
Light Amber	3.625	3.625	3.625
Amber	3.375	3.375	3.375
Red	3.125	3.125	3.125

PETROLEUM COKE

****OKLAHOMA**

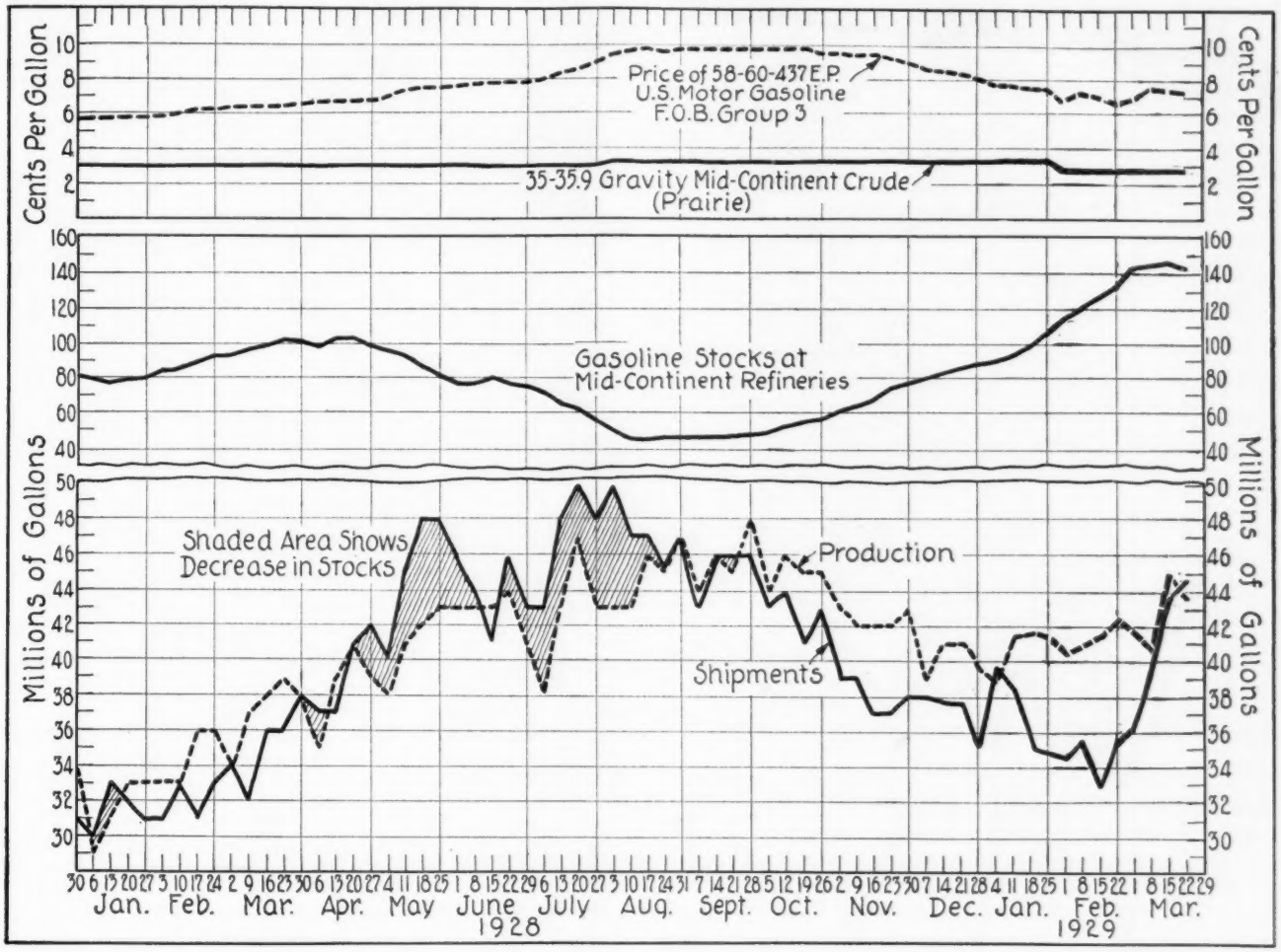
(Per ton in car lots)

Lump	$4.50 – 5.00	$4.50 – 5.00	$4.50 – 5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

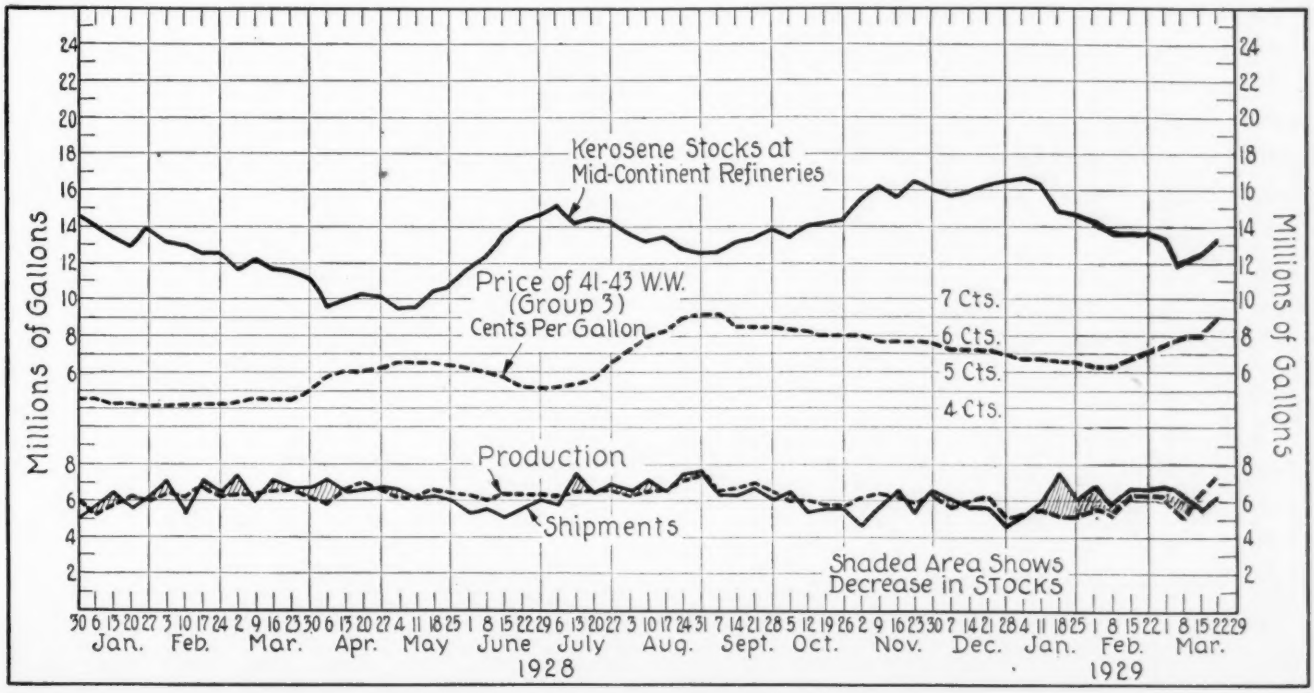
†Prices Nominal ††Only One Refiner Quoting *Quotations only **Represents both sales and quotations

Barometer of Mid-Continent Refinery Market—Week Ending March 22

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 91 Plants to National Petroleum News

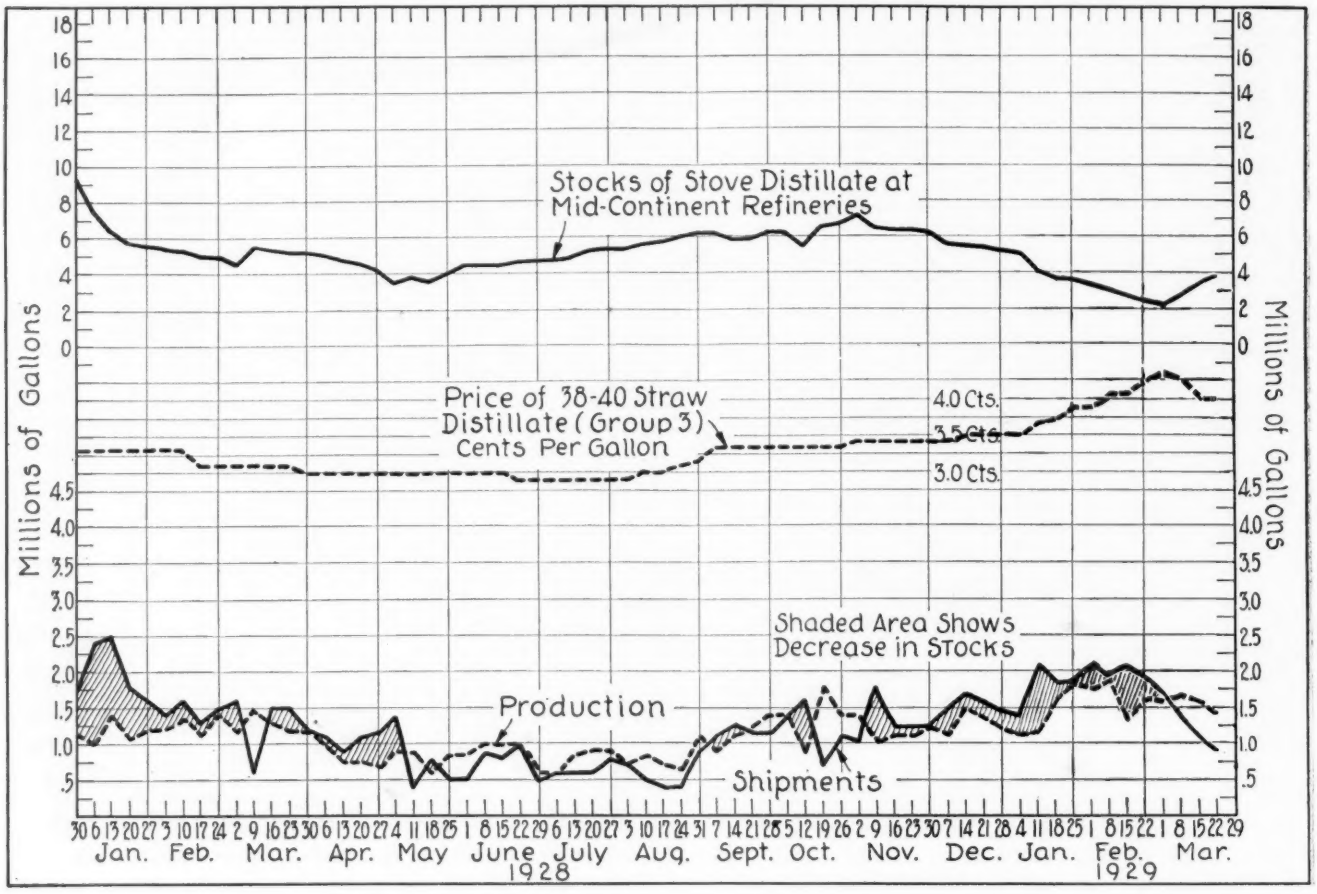

Cents Per Gallon
Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Gasoline Stocks at Mid-Continent Refineries
Millions of Gallons
Shaded Area Shows Decrease in Stocks
Production
Shipments
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1928
1929

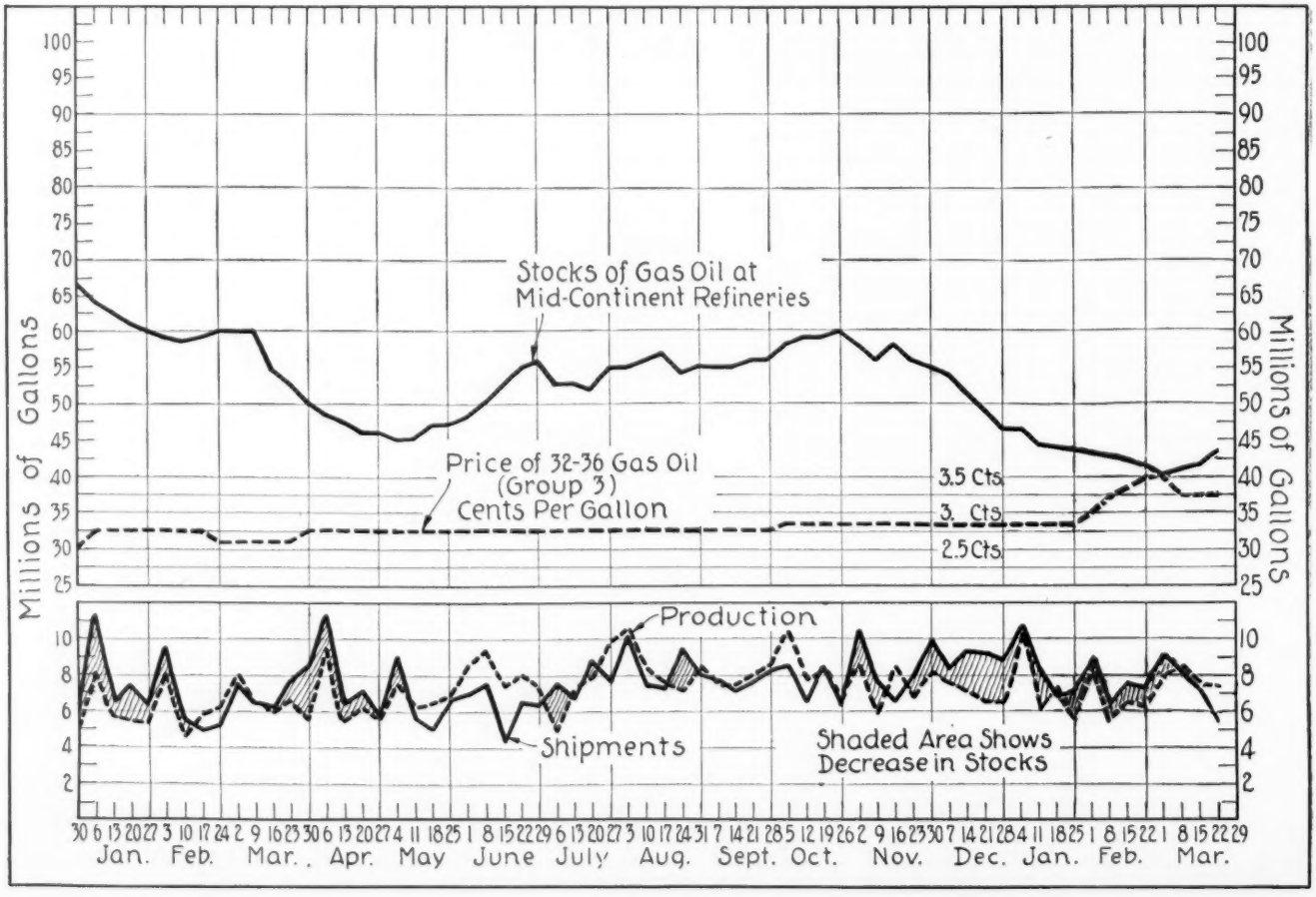
Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 82



Barometer of Mid-Continent Refinery Market—Week Ending March 22

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 91 Plants to National Petroleum News


Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) Cents Per Gallon
4.0 Cts.
3.5 Cts.
3.0 Cts.
Shaded Area Shows Decrease in Stocks
Production
Shipments
Millions of Gallons
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1928
1929


Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) Cents Per Gallon
3.5 Cts.
3. Cts.
2.5 Cts.
Production
Shipments
Shaded Area Shows Decrease in Stocks
Millions of Gallons
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.

Tractor fuel

MEETS the particular requirements of the farmer, in a tractor fuel that can be relied upon for dependable and efficient operation, just as Imperial premium gasolines meet the exacting requirements of the motor car and the airoplane.

Of the several grades of tractor fuels which we especially refine for tractor service, we recommend "*Imperial Tractor Fuel*" for dependable and efficient service and at an economical price.

Imperial
TRACTOR FUEL
SPECIFICATIONS

Gravity	38-40° A. P. I.
I. P. above	200° F
20% under	428° F
90% under	554° F
E. P. under	600° F

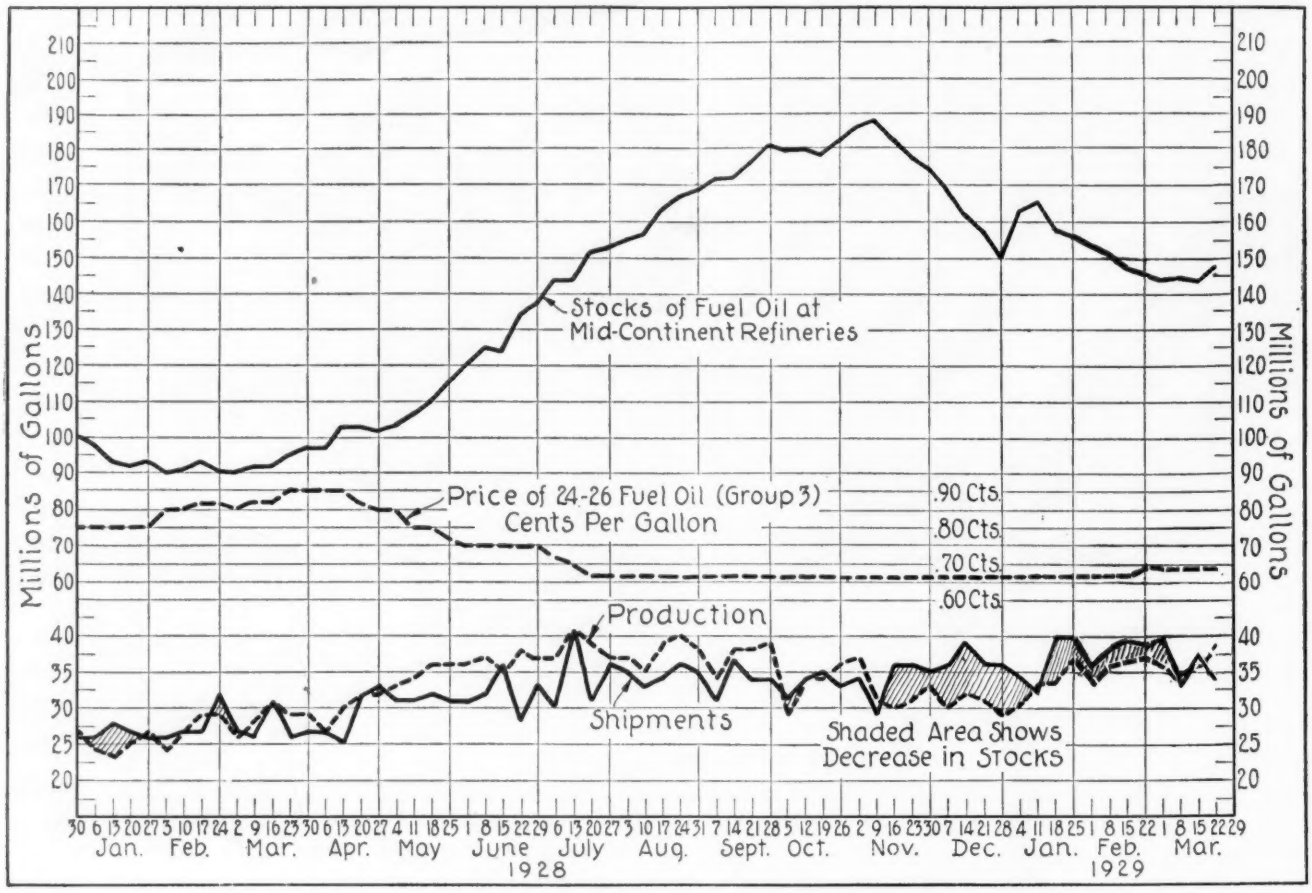
Imperial Refineries

Imperial Refining Co. **San Angelo Refining Co.**
Kettle Creek Refining Co. **Wickett Refining Co.**

General Offices
TULSA, OKLAHOMA

Barometer of Mid-Continent Refinery Market—Week Ending March 22

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 91 Plants to National Petroleum News


Millions of Gallons
Millions of Gallons
Stocks of Fuel Oil at Mid-Continent Refineries
Price of 24-26 Fuel Oil (Group 3) Cents Per Gallon
.90 Cts.
.80 Cts.
.70 Cts.
.60 Cts.
Production
Shipments
Shaded Area Shows Decrease in Stocks
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1928
1929

California Refinery Market

Cargo Gasoline Is 7 Cents

LOS ANGELES, March 21

SEVERAL cargoes of gasoline were sold at a reported price of 7 cents and one at a price that will be quoted at date of delivery at eastern seaboard. However, with the advance in the retail price of gasoline, sellers suspended operations. It is expected that if the members of the various regional committees can offer a feasible plan for the curtailment of production, the market will be greatly strengthened.

The Los Angeles tank wagon market was on edge today as gasoline in tank cars was being offered at 8.50 to 9.50 cents in the state, without tax, and 8.50 to 9 cents out of state. Although considerable gasoline was being sold at 8.50 cents buyers hesitated because The Texas Co. did not meet the advance in price of the Standard, which then announced a tank wagon price of 18.50 cents, with dealer's discount of 3 cents. This was an increase of 6 cents over the tank wagon price of last week.

The Texas Co. made its tank wagon price 11.50 cents, which enabled its dealers to dispense gasoline at 14.50 to 16 cents.

Natural gasoline was strong at 9.50 to 10 cents, several sales being reported. The reason for its strength may be found in the high price quoted by several major companies.

Burning oils were up 0.25 to 0.50 cent, although demand has fallen off.

Fuel oils were not changed from last week. Few spot sales reported.

READING Pa.—L. E. Thomas, president of the Reading Iron Co., Reading, has returned here after a two week's business trip to Texas and Oklahoma oil fields.

Talbot Made Chairman Of Richfield

LOS ANGELES, March 22.—James A. Talbot, president of the Richfield Oil Co., was elected chairman of the board of directors at a meeting of the board following the annual meeting on March 21. The position is a newly created one.

C. M. Fuller, who has been vice-president and general manager, was elected president to succeed Mr. Talbot. All other officers were reelected. W. E. Dunlap was elected to a vacancy in the board of directors at the stockholders meeting.

The regular quarterly dividend of $1.75 on preferred stock was declared, payable May 1 to stock of record April 5.

LOS ANGELES, March 22.—The MacMillan Petroleum Products Co. announces the appointment of Joseph Zeppa to vice-president in charge of sales. Mr. Zeppa formerly secretary-treasurer for the Arkansas Natural Gas Co., a subsidiary of the City Service Corp., has been connected with the oil industry for over eight years.

Pennsylvania Market

Cylinder Stocks Scarce

CLEVELAND, March 25.—Cylinder stocks prompt shipment were scarce in the western Pennsylvania refinery market last week. Only one or two sellers had any goods to offer by the end of the week.

This scarcity prevailed in the market today, with only one seller quoting on 600 steam refined, 600 flash, 625 flash, or 600 Oil City E. The 650 steam refined, 600 Warren E and 600 D filtered stocks were sold up. The scarcity followed an active demand beginning about two weeks ago, when time of shipment rather than price was the most important market factor.

Kerosene was exceedingly active in several refining districts today. This commodity has been active for the past few weeks, but the demand was heavy with some refiners today. Quotations on kerosene have advanced approximately 0.25 cent so far this season. The 45 w.w. was quoted at 7.25 to 7.375 cents generally late last week with the market range 7 to 7.50 cents.

Gasoline was unchanged last week. Quotations on 58-60 U. S. Motor were 8.50 to 9.25 cents. Higher gravity gasoline prices were unchanged. Refiners generally were not quoting gasoline for April delivery. They reported they were going to move their goods on the spot tank car market. One seller was quoting U. S. Motor at 8.75 cents for over April and had a limited quantity to offer at 8.50 cents.

Service station gasoline sales were good over the week end. One refiner reported his stations last week had better gallonage than for the previous week.

Bright stocks were higher in line with cylinder stock activity. Light bright stock was 41 cents with a limited quantity available at 40 cents for prompt delivery.

Fuel oil, neutrals and wax were unchanged over the week. Fuel oil prices were unchanged at 5 to 5.25 cents for 36-40 and 4.75 cents for 30-34 and 28-32 grades. Some refiners have advanced their quotations on neutrals but price ranges were unchanged. Wax was quoted at 3.75 to 4 cents for 122-124 and 4 cents for 124-126.

Some refiners have withdrawn from the wax market until they can obtain better prices for their goods. One refiner was not quoting on U. S. Motor gasoline business. Most refiners in the Pittsburgh district were well sold up.

Petrolatum demand was reported as a trifle better last week. Quotations were unchanged.

STEEL BUILDINGS for EVERY PURPOSE

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METER HOUSES
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ECONOMICAL!
and SUBSTANTIAL!

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Tell Them Your Brand With Color

Color your anti-knock or high test gasoline an attractive shade by which the public will recognize and remember your good product.

DYKEM GASOLINE COLORS

Made to stay in gasoline; simple, safe, economical.

Several Shades of

RED GREEN BLUE
ORANGE PURPLE

Write for price and sample of shade you prefer.

DYESTUFFS & CHEMICALS, INCORPORATED
11th & Monroe Sts. St. Louis, Mo.

New York Domestic Market

Jobbers Resume Gasoline Buying

Staff Special
NEW YORK, March 23

EASTERN gasoline markets took on new life the past week with the resumption of more active buying from the jobbing trade. Posted prices remained unchanged in most districts along the Atlantic seaboard. The volume of goods moving at exceptionally low prices into highly competitive areas, however, diminished with the result that price ranges narrowed down considerably.

In searching about for an explanation of the market's improved condition, the trade was satisfied that it came largely from a betterment of the general petroleum situation although the elimination of cut-throat competition in upstate New York had a good bit to do with it.

It could hardly be said that gasoline markets in the east were strong, but it was generally agreed among the trade, both buyers and sellers, that they were in a much healthier position than they were a week ago.

It was just about this time a year ago that midwestern refiners began marking their gasoline prices up, which, of course, was followed by a series of advances along the eastern seaboard. The trend of Mid-Continent markets in that direction toward the end of this week indicated to a good many of the trade here that a similar movement was about to get underway in seaboard markets. In fact several large sellers in the New York market said they were contemplating such action themselves and had reason to believe there would be few, if any, dissenting factors when such a move once got started.

The market for U. S. Motor gasoline in New York harbor opened March 18 with the majority of active sellers quoting 9 cents for spot goods. Several sellers, however, indicated they were meeting competition which resulted in a sizable portion of their daily sales going at 8.75 cents. As the week advanced 8.50 cent gasoline appeared on the market in rather large volume, at least sufficient to be representative of the general going market. Occasional sales were made at still lower prices, but these were the exception rather than the rule. Toward the end of the week, however, there was little stuff available at under 8.50 cents and in many quarters the opinion was expressed that this figure was the bottom of the market on the present movement. A survey of jobbers upstate showed that quotations for rather liberal quantities at 8.50 cents were being made.

A large buyer reported Saturday he had been offered a sizable quantity of California U. S. Motor gasoline at 8.50 cents in barges f.o.b. New York harbor. It was doubtful, however, if this price could be done for tank car shipments.

Several sellers of both U. S. Motor and California gasoline in the Philadelphia market dropped their posted prices for both grades to 8.75 cents to meet competition from New York harbor at this figure. Contract demand from Pennsylvania jobbers was increasing, they said, but they were receiving fewer spot orders in view of lower prices at New York harbor.

New England markets were steady with most sellers quoting U. S. Motor at a minimum of 10 cents, delivered in the Boston and Providence districts. It was reported Saturday that several sellers were figuring on raising their prices to a minimum of 10.50 cents delivered in the Boston and Providence districts, the advance to become effective March 25. The reports could not be confirmed.

Gasoline prices in other districts along the seaboard were unchanged.

Kerosene was generally unchanged both in price and demand in all districts.

Gulf Export Market

Export Buyers More Active

Staff Special
NEW YORK, March 25

MORE active demand for gasoline and kerosene from foreign buyers and a 1-cent advance in posted prices for kerosene for export were the outstanding features in Gulf markets this week.

An Independent French buyer bought a mixed cargo of gasoline and kerosene and two French subsidiaries of United States refiners inquired for mixed cargoes which totaled approximately 150,000 barrels.

All in all there was more activity in the market than in any previous week this year. It was cause for rejoicing among suppliers inasmuch as some market students thought stocks of gasoline at the Gulf were on the verge of becoming topheavy.

Business closed this week was taken by a leading Philadelphia refiner and involved approximately 70,000 barrels of U. S. Motor, 61-63, 390 end point, and 64-66, 375 end point gasolines, prime white and water white kerosenes. The prices paid for all grades were those posted by members of the export association. The cargo is to be lifted between April 15 and May 15.

The transaction was particularly significant in that it was the first open market transaction that has been closed by a United States Gulf supplier at prices fixed by the export association. The buyer got under the rope just in time. Kerosene prices were advanced 1 cent the day following his acceptance of the seller's firm offer. Prime white kerosene is now posted at 7.75 cents and water white at 8.75 cents.

An English buyer was inquiring through New York brokers for a 70,000 to 80,000-barrel cargo of 400 end point California gasoline. This buyer, usually a large one, has been out of the market since the first of the year, and his inquiry this week further convinced the trade that the proposition of fixing export prices was at last "getting over." Prices for export from California have been fixed at a differential of 1 cent under the Gulf.

Foreign buyers displayed little interest in heavy oils and this section of the Gulf market was relatively quiet this week. Prices for all oils remained unchanged over last week.

Gasoline prices for coastwise movement also were unchanged. At least two large sellers continued to offer U. S. Motor at around 7.625 cents f.o.b. the Gulf for shipment north of Hatteras. A buyer, however, stated he had paid 8 cents for a small lot, approximately 500,000 gallons, of this grade.

Kerosene prices for domestic shipment advanced in sympathy with rising markets in the field and only a limited quantity of this commodity was reported available at the Gulf.

Wax Market

Buying Is Small

NEW YORK, March 23.—Export wax markets about marked time this week. Several small inquiries from foreign buyers were in the market for white crude scale but no sizable business developed. Fully refined waxes were neglected and prices eased off 0.125 to 0.25-cent for the lower melting point grades.

White crude scale was freely offered in the New York market at 3.75 cents a pound; small lots were reported available at 3.625 cents and in some quarters it was felt even this figure might be shaded on firm offer. Buyers' ideas of prices still were well under the level at which sellers were willing to dispose of goods.

Fully refined wax, 125-127 A.m.p., sold at around 4.60 cents a pound f.o.b. the Gulf which figures approximately 4.75 cents on the basis of f.o.b. New York harbor. Sellers in the latter market were quoting a minimum of 5 cents a pound for this grade, but it was indicated in some quarters that this price might be shaded on firm offer.

Bankers Seek Control Of Valvoline Co.

CLEVELAND, March 25.—Negotiations are still pending for the purchase of controlling stock in the Valvoline Oil Co. by a group of bankers, but nothing has developed that may be announced, it was said March 25 at the Valvoline's New York headquarters.

Valvoline operates a 2500-barrel wax plant at East Butler, Pa., and a 1000-barrel wax plant at Warren, Pa. It distributes its lubricating oils throughout the United States, Europe and South America.

The company was organized in 1901 succeeding to the partnership of Leonard & Ellis which was organized in 1868. It is among the oldest existing oil organizations.

W. D. Ellis is president and general manager; H. W. Nuckels, vice-president; C. C. Gould, secretary-treasurer, and F. C. Eaton and H. G. Eaton, refinery superintendents.

The company's outstanding capital issues a year ago consisted of 32,286 shares of $100 par value common stock; 9278 shares of $100 par 8 per cent preferred stock, and $1,645,500 7 per cent debentures. The company has paid $6 a share on its common stock.

The company has about 1600 miles of pipe lines that gathers Pennsylvania grade crude oil in Pennsylvania, West Virginia and southeastern Ohio.

Thomas Is V. P. of Burford Oil Co.

TULSA, March 23.—John J. Thomas, general superintendent for Burford Oil Co. was elected a vice president of the company March 21, according to an announcement from the company's general offices at Shreveport. Mr. Thomas at present is stationed at Pecos, Tex. where he had charge of the construction of the company's refinery.

Mr. Thomas was connected with the Skelly Oil Co., El Dorado, Kan. for a number of years. He resigned to engage in consulting engineering work and later was employed as refinery superintendent for Crystal Oil Refining Corp., Shreveport. Since May, 1928, he has been with the Burford Oil Co. Mr. Thomas will continue to make his headquarters at Pecos.

What Oil Advertisements Should Accomplish

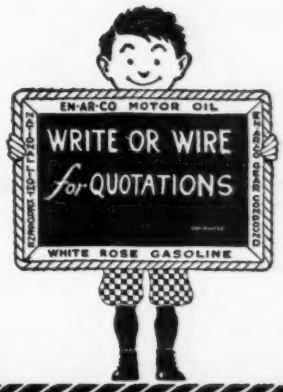
CLEVELAND, March 25.—Oil companies should write their advertisements so their readers and customers would feel that the company was discussing them and their comfort or pleasure, John S. King, Cleveland advertising man, told members of the Western Reserve Petroleum Club at its monthly meeting March 22.

Too many advertisements are written to please the executives of the company doing the advertising and therefore are worthless as the means of stimulating trade in that company's products, Mr. King said.

Mr. King also warned the club members who are marketers in Cleveland and surrounding northeastern Ohio territory that the days of a sellers' market will never return in their lifetimes, not even with gasoline the supply of which he predicted would be ample. He lately toured the southwestern oil fields on behalf of his advertising clients.

Blair to Merge With Bank

NEW YORK, March 23.—Merger of Blair & Co., which has been prominent for years in oil company financing and consolidations, and the Bank of America, has been voted by the directors of both corporations. The securities business of Blair & Co. will be merged with the Bancamerica Corp. One of the latest pieces of Blair operations was the organization of the Petroleum Corp. of America investment trust.



En-ar-co
MOTOR OIL
White Rose
GASOLINE

YOU will make money if you handle these nationally advertised brands.

All grades of lubricating oils and greases.

The National Refining Co.
Cleveland, Ohio

Special Muleskin Folio

Your Name in Gold FREE

Complete Net $7.50

362K—Special made folio from heavy double weight muleskin in handsome shark grain. Has three pockets, heavy leather straps and handle, gold lock, bottom reinforced with steel studs. Inner case contains six 4-oz. bottles, partitioned separately, lined with red velvet. Metal capped corks furnished. Case also contains five grease jars.

Other styles in our FREE Catalog

L-U-C-E

Builders of Sales Luggage

614 Delaware, Kansas City, Mo.

Complete Seaboard Market

(Export markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of quotations.)

U. S. MOTOR GASOLINE	Mar. 25	Mar. 18	Mar. 11
New York harbor	8.50– 9.00	8.75 – 9.00	9.00 – 9.25
Portland district	**10.75–11.00	*10.50	**10.50–10.75
Boston district	**10.25–10.50	*10.00	**10.00–10.25
Providence district	**10.25–10.50	*10.00	**10.00–10.25
Philadelphia district	8.75– 9.00	9.00	9.25
Baltimore district	9.00	9.00	9.00 – 9.25
Norfolk district	9.00	9.00	9.00 – 9.25
Charleston district	9.00	9.00	9.00 – 9.25
Savannah district	8.75– 9.00	8.75 – 9.00	9.00 – 9.25
Jacksonville district	9.00	9.00	9.00 – 9.25
CALIFORNIA U. S. MOTOR GASOLINE			
New York harbor	9.00	9.00	9.25
Philadelphia district	8.75	9.00	9.25
Baltimore district	9.00	9.00	9.25 – 9.50
WATER WHITE KEROSENE			
New York harbor	8.00	8.00	8.50
Philadelphia district	8.00	8.00	8.50
Baltimore district	8.00 – 8.50	8.00 – 8.50	8.50
GAS OIL: 28-34 Gravity			
New York harbor	4.50 – 5.00	4.50 – 5.00	4.75 – 5.00
Boston district	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
FURNACE OIL: 36-40 Gravity			
New York harbor	6.00 – 6.50	6.00 – 6.50	6.50
Boston district	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
GRADE C BUNKER OIL			
New York harbor	$1.05	$1.05	$1.05
Boston district	$1.05	$1.05	$1.05
DIESEL OIL			
New York harbor	$2.00	$2.00	$2.00
MEDICINAL OILS, RUSSIAN			
885-890 s.g., 325-330 vis.	$0.80 – 0.90	$0.80 – 0.90	$0.80 – 0.90
870-875 s.g., 150-155 vis.	$0.67 – 0.77	$0.67 – 0.77	$0.67 – 0.77
860-865 s.g., 80-85 vis.	$0.65 – 0.75	$0.65 – 0.75	$0.65 – 0.75

Note: Above gasoline prices do not include inspection tax levied in some states.
*Minimum delivered. **Delivered prices.

New York Export Market

(Lubricating oils are per gal. in bbls.)

	Mar. 25	Mar. 18	Mar. 11
CYLINDER OILS (Pennsylvania Products)			
Bright stock, dark	46.00 –48.00	45.00 –47.00	44.00 –47.00
600 D filtered	37.00	36.50 –37.50	36.50 –37.00
600 Warren E filtered	34.00	32.00 –33.00	32.00 –33.00
600 s.r. unfiltered	31.50 –32.00	29.50 –31.50	29.50 –31.50
650 s.r. unfiltered	37.50 –38.00	36.00 –37.50	36.00 –37.50
600 flash, s.r.	39.00 –41.00	38.00 –41.00	41.00
630 flash, s.r.	46.00	44.00 –46.00	44.00 –46.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	20.00	20.00	20.00
250 vis. No. 6 color	19.50	19.50	19.50
200 vis. No. 6 color	18.00	18.00	18.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	23.50	23.50	23.50
180 vis. No. 3¼ color	19.00	19.00	19.00
100 vis. No. 2¼ color	16.00	16.00	16.00
MOTOR OILS (Vis. 100°)			
600 vis No. 7 color	33.00	33.00	33.00
500 vis. No. 6½ color	31.00	31.00	31.00
400 vis. No. 7¼ color	30.00	30.00	30.00
300 vis. No. 6 color	29.00	29.00	29.00
200 vis. No. 6 color	28.00	28.00	28.00
MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g.	$0.70	$0.70	$0.70
WAXES (In cents per pound, f.a.s. carload lots)			
WHITE CRUDE SCALE (In barrels)			
122-124 A.m.p.	3.75	3.75	3.50 – 3.75
124-126 A.m.p.	3.75	3.75	3.50 – 3.75
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	5.00 – 5.25	5.125– 5.25	5.00 – 5.25
125-127 A.m.p.	5.00 – 5.25	5.125– 5.25	5.00 – 5.25
128-130 A.m.p.	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
130-132 A.m.p.	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
133-135 A.m.p.	6.625– 6.875	6.75 – 6.875	6.75 – 6.875
135-137 A.m.p.	7.00	7.00 – 7.25	7.00 – 7.25
YELLOW CRUDE SCALE			
124-126 A.m.p.	3.625	3.625	3.50

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. or more unless otherwise noted and for export shipment only).

GASOLINE	Mar. 25	Mar. 18	Mar. 11
U. S. Motor	8.50	8.50	8.50
60-62 400 e.p.	9.50	9.50	9.50
61-63, 390 e.p.	9.75	9.75	9.75
64-66, 375 e.p.	10.00	10.00	10.00
U. S. Motor, cases (cargoes)	$1.75	$1.75	$1.75
64-66, cases (cargoes)	$1.90	$1.90	$1.90
KEROSENE			
44 water white	8.75	7.75	7.75
41-43 prime white	7.75	6.75	6.75
Water white, cases (cargoes)	$1.80	$1.70	$1.70
Prime white, cases (cargoes)	$1.70	$1.60	$1.60
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.75 – 3.875	3.75 – 3.875	3.75 – 3.875
*30 plus translucent gas oil	3.875	3.875	3.875
Grade C bunker oil	$0.875–$0.95	$0.875–$0.95	$0.875–$0.95
Grade C bunker oil, cargoes	$0.70	$0.70	$0.70

*Less than ½ of 1% sulfur.

MEXICAN CRUDE AND BUNKER OILS (F. O. B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$.075	$0.75	$0.75
Grade C bunker oil, for bunkering purposes, taxes paid	$0.90	$0.90	$0.90
SOUTH TEXAS LUBRICATING OILS (Viscosity at 100° F.: cold test 0) (Tanker, f.o.b. Houston)			
100 vis. No. 2 unfiltered pale	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
200 vis. No. 3 unfiltered pale	8.50 – 9.50	8.50 – 9.50	8.50 – 9.50
300 vis. No 3 unfiltered pale	9.75 –10.50	9.75 –10.50	9.75 –10.50
500 vis. No. 3½ unfiltered pale	11.00 –12.00	11.00 –12.00	11.00 –12.00
750 vis. No. 4 unfiltered pale	13.00 –13.25	13.00 –13.25	13.00 –13.25
1200 vis. No. 5 unfiltered pale	16.00 –17.00	16.00 –17.00	16.00 –17.00
200 vis. No. 5-6 red oil	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
300 vis. No. 5-6 red oil	9.00 – 9.25	9.00 – 9.25	9.00 – 9.25
500 vis. No. 5-6 red oil	10.00 –10.50	10.00 –10.50	10.00 –10.50
750 vis. No. 5-6 red oil	11.50 –12.00	11.50 –12.00	11.50 –12.00
1200 vis. No. 5-6 red oil	15.00 –16.50	15.00 –16.50	15.00 –16.50

Gulf Domestic Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana in shipments of 20,000 bbls. or more, representing sellers' opinions, for domestic shipment only).

	Mar. 25	Mar. 18	Mar. 11
U. S Motor gasoline	7.625– 7.75	7.625– 7.75	7.75
41-43 w.w. kerosene	7.00 – 7.25	6.875– 7.00	6.875– 7.00
*28-32 translucent gas oil	3.875	3.875	3.875

*Less than ½ of 1% sulfur.

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Mar. 25	Mar. 18	Mar. 11
Gasoline, U. S. Motor, 53-55 Gravity	7.125– 7.75	7.125– 7.75	7.25 – 7.75
Gasoline, U. S. Motor, blends and special cuts	8.25 –10.00	7.50 –10.00	8.25 –10.00
Gas Oil, 30-34, per barrel	$0.95 –$1.05	$0.95 –$1.05	$0.95 –$1.05
Diesel Oil, 27 plus, per barrel	$0.875–$1.05	$0.875–$1.00	$0.875–$1.00
Bunker oil, 14-18, per barrel	$0.70 –$0.85	$0.70 –$0.85	$0.70 –$0.85
Fuel oil, 14-18 per barrel	$0.60 –$0.85	$0.60 –$0.85	$0.65 –$0.85
Kerosene, 38-40 w.w., 125-150 flash, per gal.	5.50 – 6.25	5.50 – 6.25	5.50 – 6.50
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Kerosene, 38-40 w.w., 125-150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

	Mar. 25 Crude &/or Fuel	Refined Oil &/or Spirits
Calif. to U. K. or Continental ports*	28–30	27
Gulf to U. K. or Continental ports*	17	16–17
North Atlantic to U. K. or Continental ports*	15	14–15
Calif. to North Atlantic ports (not E. of N. Y.)	75–80	68–70
Gulf to North Atlantic ports (not E. of N. Y.)**	30–32	28–29

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.
**For Venezuela loading 1c per bbl. additional. For Tampico loading 4c per bbl. additional.

New Stations Building

Note: Material used in this column is principally taken from newspapers. NATIONAL PETROLEUM NEWS assumes no responsibility for its accuracy.

Devils Lake, N. D.—Mr. Hofmeister service station.

Huntingdon, Tenn.—Priest Redden, filling station.

Kokomo, Ind.—Standard Oil Co., filling station.

Blanco, Tex.—Clarence Johnson, filling station.

Tucumcari, N. M.—Phillips Petroleum Co., filling station.

Traverse City, Mich.—C. J. Samuelson & Sons, filling station.

Kenton, O.—Farmers & Business Co., filling station.

Leon, Ia.—Leon Oil Co., filling station.

New Hampton, Ia.—Mr. Bearman, filling station.

Miles City, Mont.—Mrs. R. R. McMillen, filling station.

Valley Center, Kans.—White Eagle Oil & Refining Co., Kansas City, Mo., filling station.

Crossville, Ill.—Frank Ridenour, filling station.

Perry, Okla.—E. C. Ross, filling station.

Falls City, Neb.—C. E. Crouch, filling station.

New Orleans, La.—The Texas Co., filling station.

Albuquerque, N. M.—Phillips Petroleum Co., two filling stations.

Schulenburg, Tex.,—Magnolia Petroleum Co., filling station.

Sioux City, Ia.—Henry G. Mears, filling station.

Wellington, Kans.—Ford Super-Service Station.

San Antonio, Tex.—Grayburg Oil Co., filling station.

Omaha, Neb.—Jaap Tire Co., service station.

Grand Junction, Colo.—Grand Oil Co., filling station.

Emmetsburg, Ia.—Mid-Continent Oil Co., Waterloo, Ia., filling station.

Miami, Fla.—Orange State Oil Co., filling station.

St. Cloud, Minn.—Paul Umerski, filling station.

La Moure, N. D.—Farmers' Co-op Oil Co., bulk oil station.

Columbus, Neb.—The Texas Co., filling station.

Sioux Falls, S. D.—Abe Light, 209 E. 26th St., service station.

Boone, Ia.—The Texas Co., filling station.

TULSA, March 23.—The Mid-Continent Petroleum Corp. has purchased the bulk and service stations of the Land Petroleum Co., Warrensburg, Mo. The company is listed as having four bulk and six service stations, with a storage capacity of 175,000 gallons.

Skilled Supervision
Guarantees the Quality of
Gulf Products

COASTAL AND PARAFFINE CRUDES
GASOLINE — LUBRICATING OILS
NAPHTHA — GAS — OILS
WAX — PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

Gulf Refining Company

General Sales Offices
PITTSBURGH, PA.

District Sales Offices
New York, Boston, Philadelphia, Louisville, Atlanta, Houston, New Orleans

Pipe Stills

THE M. W. KELLOGG CO.
225 Broadway • New York

Houston, Texas.....1514 Petroleum Bldg.
Tulsa, Okla.....Philtower Bldg.
Los Angeles, Cal.....1031 So. Broadway

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t. w. and s. s. markets for a whole year, arranged for quick reference)

These Prices in Effect March 25, 1929, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline Tax	Gasoline Total T.W	Gasoline Total S.S.	Oil T.W
Atlantic City, N. J.	2	16	20	13
Newark, N. J.	2	16	20	13
Annapolis, Md.	4	18	22	13
Baltimore, Md.	4	18	22	12
Cumberland, Md.	4	18	22	13
Washington, D. C.	2	16	20	12
Danville, Va.	5	19	23	13
Norfolk, Va.	5	19	23	13
Richmond, Va.	5	19	23	13
Roanoke, Va.	5	19	23	13
Petersburg, Va.	5	19	23	13
Charleston, W. Va.	4	18	22	13
Keyser, W. Va.	4	18	22	13
Parkersburg, W. Va.	4	18	22	13
Wheeling, W. Va.	4	18	22	13
Charlotte, N. C.	4	18	22	13
Hickory, N. C.	4	18	22	13
Mt. Airy, N. C.	4	18	22	13
Salisbury, N. C.	4	18	20	13
Charleston, S. C.	6	20	24	13
Columbia, S. C.	6	20	24	13

CONTINENTAL OIL

Denver, Colo.	3	14	16		15.5
Pueblo, Colo.	3	17	20		15.5
Grand Junc., Colo.	3	21.5	24.5		19
Casper, Wyo.	3	18	21		14
Cheyenne, Wyo.	3	19	22		15.5
Butte Mont.	3	22.5	25.5		20
Helena, Mont.	3	22.5	25.5		20
Salt Lake City, Utah	3½	21	24		17
Boise, Ida.	4	23.5	26.5		19
Twin Falls, Ida.	4	23.5	26.5		19
Albuquerque, N. M.	5	22	25		17

S. O. CALIFORNIA

Phoenix, Ariz.	4	16	20	21.5
Los Angeles, Cal.	3	18.5	22.5	15.5
Fresno, Cal.	3	19	23	16.5
San Francisco, Cal.	3	19	23	15.5
Reno, Nev.	4	24	28	19
Portland, Ore.	3	19.5	23.5	16.5
Seattle, Wash.	2	18.5	22.5	16.5
Spokane, Wash	2	22.5	26.5	20.5
Tacoma, Wash.	2	18.5	22.5	16.5

Note: 3c per gal. discount to dealers off t. w. price thru territory.

S. O. LOUISIANA

Little Rock, Ark.	5	17	21		13
Alexandria, La.	4	15	19		†16
Baton Rouge, La.	4	14	18		†14.5
Lake Charles, La.	4	13.5	17.5		†16
New Orleans, La.	4	*15.5	*19.5		†16
Shreveport, La.	4	15	19		†15
Lafayette, La.	4	**16	**20		†14
Bristol, Tenn.	5	20	23		14
Chattanooga, Tenn.	5	19.5	23.5		16
Knoxville, Tenn.	5	20	24		16
Nashville, Tenn.	5	19	23		16
Memphis, Tenn.	5	18	22		12.5

*New Orleans gasoline prices include 1c parish tax in addition to 4c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

**Lafayette gasoline prices include 1c parish tax in addition to 4c state tax.

S. O. KENTUCKY

Ashland, Ky.	5	21	23		15.5
Catlettsburg, Ky.	5	21	23		15.5
Lexington, Ky.	5	20	22		15.5
Louisville, Ky.	5	20	22		15
Covington, Ky.	5	20	21		15.5
Clarksdale, Miss.	5	21	23		12.5
Gulfport, Miss.††	5	22.5	24.5		14
Jackson, Miss.	5	20	22		13
Natchez, Miss.	5	20.5	22.5		14
Vicksburg, Miss.	5	20.5	22.5		14
Birmingham, Ala.	4	18	20		13
Mobile, Ala.‡	4	21	23		15
Montgomery, Ala.*	4	22	24		16.5
Atlanta, Ga.	4	21	23		†16.5
Augusta, Ga.	4	21	23		†15.5
Macon, Ga.	4	21	22		†16.5
Savannah, Ga.	4	20	22		†15.5
Jacksonville, Fla.	5	22	24		14.5
Miami, Fla.	5	23	25		15.5
Tampa, Fla.	5	22	24		14.5
Pensacola, Fla**	5	23	25		14.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. ‡Mobile gasoline prices include 1c city tax.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

Latest Changes In Tank Wagon Prices

(By Telegraph)

Gasoline Changes

S. O. New Jersey—T.w. and s.s. prices advanced 1c, South Carolina, covering tax increase of that amount, **March 18.** Total tax now is 6c.

S. O. New York—T.w. and s.s. prices gasoline cut 1c, Albany, to 13c and 14c respectively, **March 23.**

S. O. Louisiana—T.w. and s.s. prices gasoline cut 2c, Lake Charles, La., to 13.5 and 17.5c respectively, including 4c tax, **March 20.**

Continental Oil—T.w. and s.s. gasoline advanced 2c, Boise, to 23.5 and 26.5c respectively, including 4c state tax, **March 20.**

S. O. California—T.w. and s.s. gasoline advanced 6c thru territory except Arizona, and dealers given 3c per gallon off posted t.w. price, **March 19.**

Kerosene Changes

S. O. New York—Kerosene cut 1c, Syracuse, to 12c t.w., **March 15.**

S. O. Kentucky—Kerosene cut ½c, Clarksdale, to 12.5c t.w., **Feb. 23.**

S. O. Indiana—Kerosene advanced 1c, thru territory, **March 23.** Last previous general change was 1c advance on **Aug. 1, 1928.**

S. O. Nebraska—Kerosene advanced 1c, thru Nebraska, **March 25.**

Magnolia Petroleum — Kerosene cut 1c, Fort Smith, to 12c t.w., **March 14.**

Continental Oil—Kerosene advanced 1c, Colorado, Wyoming and Montana, **March 25.**

S. O. NEBRASKA

	Gasoline Tax	Gasoline Total T.W.	Gasoline Total S.S.	Oil T.W.
Omaha, Neb.	2	16.25	18.25	13.25
McCook	2	17.75	19.75	14.75
Norfolk	2	16.75	18.75	13.75
North Platte	2	17.75	19.75	14.50
Scottsbluff	2	17.75	19.75	14.25

S. O. INDIANA

Chicago, Ill.	0	14	15	13
Decatur, Ill.	0	14.2	15.2	13.1
E. St. Louis, Ill.	0	13.4	14.4	12.2
Joliet, Ill.	0	14.4	15.4	13.3
Peoria, Ill.	0	14.2	14	13.1
Quincy, Ill.	0	14.2	15.2	12.9
Indianapolis, Ind.	3	17.2	18.2	14.2
Evansville, Ind.	3	17	18	14
South Bend, Ind.	3	17.4	18.4	14.4
Detroit, Mich.	3	17.8	18.8	14.7
Grand Rapids, Mich.	3	17.7	18.7	14.6
Saginaw, Mich.	3	17.9	18.9	14.8
Green Bay, Wis.	2	16.6	17.6	13.4

S. O. INDIANA (*Continued*)

	Gasoline Tax	Gasoline Total T.W.	Gasoline Total S.S.	Oil T.W.
Madison, Wis.	2	16.3	17.3	13.1
Milwaukee, Wis.	2	16.1	17.1	12.9
La Crosse, Wis.	2	17.2	18.2	14
Minneapolis, Minn.	2	17.2	18.2	13.9
Duluth, Minn.	2	17.5	18.5	13.9
Mankato, Minn.	2	17.1	18.1	13.7
Des Moines, Ia.	3	17.5	18.5	13.3
Davenport, Ia.	3	17.5	18.5	13.3
Sioux City, Ia.	3	17.1	18.1	12.9
Mason City, Ia.	3	17.5	18.5	13.3
St. Louis, Mo.	2	15.9	16.9	12.3
Kansas City, Mo.	2	†14.9	16.9	11.6
St. Joseph, Mo.	2	†14.5	16.5	17.5	12.2
Fargo, N. D.	2	16.9	18.9	19.9	15.9
Grand Forks, N. D.	2	17.2	19.2	20.2	16.2
Minot, N. D.	2	16.9	18.9	19.9	15.9
Pierre, S. D.	4	15	19	20	14.4
Huron, S. D.	4	15.3	19.3	20.3	14.7
Wichita, Kans.	2	12.8	14.8	15.8	11.8
Bartlesville, Okla.	3	12.5	15.5	16.5	11.5

S. O. Indiana's quantity contract price schedule thru territory except Chicago on tank truck deliveries of gasoline, figured from the service station price, is 2c for 500 gals. or more a month; 2½c for 2000 gals. or more a month and 3c for 6000 gals. or more a month.

In Chicago and vicinity, these discounts apply: Over 500 gals. per month, 2c per gal. off service station price; over 1,000 gals. per month, 4c per gal. off service station price.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. OHIO

Wilmington, O.	*11	3	*14	14	12
Summit and Fayette counties, Hamilton & Findlay.	**13	3	**16	16	12
†At Other Competitive Points.	*13	3	*16	17	12
Elsewhere in Ohio.	*14	3	*17	18	12

†These points are: all of Columbiana county, including East Liverpool, Wellsville, Salem, Columbiana and Lisbon; all of Mahoning county, including Youngstown, Lowellville and Struthers; all of Franklin county, including Columbus, Westerville, Worthington and Rome; all of Scioto county, including Portsmouth; Fairfield county, including Lancaster; Stark county, including Canton, Alliance, etc.; Lorain county, including Lorain, Elyria, etc.; Trumbull county, including Niles, Warren, etc.; and these additional points: Marion, Lima, Perrysburg, Bryan, Hicksville, Mansfield, Kent, Middletown, Fostoria, Piqua and Piketon.

*Dealers and commercial accounts get 2c per gal. off t.w. price. Discounts off service station price eliminated Jan. 29, on which date 2c discount to governmental agencies and public utilities was also discontinued, except on uncancelable contracts.

**Dealer and commercial consumers' discount in Summit and Fayette counties, including Akron and Washington C. H., is 3c per gal. off tank wagon price.

MAGNOLIA PETROLEUM

Muskogee, Okla.	**12	3	15	17	12
Oklahoma City	**13	3	16	18	12
Tulsa, Okla.	**14	3	17	19	10
Fort Smith, Ark.†	12	†3	15	19	12
Little Rock, Ark.	12	5	17	21	13
Texarkana, Ark.*	14	*2	16	20	13
Dallas, Tex.	14	2	16	20	12
Fort Worth, Tex.	11	2	13	16	12
Houston, Tex.	14	2	16	20	13
San Antonio, Tex.	11	2	13	17	11
El Paso, Tex.	15	2	17	20	16

*Within city of Texarkana, the state tax on gasoline is 2c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 3c applies. In this district outside of the city, the 5c Arkansas tax applies.

**Less 2c to dealers and power trade.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

New York City	17	0	17	*19	15
Albany, N. Y.	13	0	13	14	15
Buffalo, N. Y.	14	0	14	15	14
Rochester, N. Y.	14	0	14	15	13
Syracuse, N. Y.	15	0	15	16	12

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Colorado, 1/10c on both; Florida, 1/8c on both; Indiana, 2/25c on both; Kansas, 1/50c on both; Louisiana, 1/32c on gasoline, 1c on kerosene; Minnesoto, 3/50c on both; Missouri, 1/50c on both; Nebraska, 3/50c to 1/2c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c on kerosene; Wisconsin, 3/50c on both.

Kerosene inspection fees only: Iowa, 13/100c; Michigan 1/5c to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above states or other states there are local inspection fees.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

Prices in Effect March 25, 1929

S. O. NEW YORK

(Continued)

	Gasoline				Oil
	Total T.W.	Tax	T.W.	S.S.	T.W.
Boston, Mass.	16	2	18	20	15
Augusta, Me.	16	4	20	22	15
Manchester, N. H.	16	4	20	22	15
Burlington, Vt.	15	3	18	20	15

Note: S. O. New York allows concessions of 1 to 2c per gal. to dealers under posted tank wagon prices.

*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator in New York, selling Socony gasoline.

ATLANTIC REFINING

Pittsburgh, Pa.	†15	*	†15	20	14
Philadelphia, Pa.	†15	*	†15	20	14
Allentown, Pa.	†15	*	†15	20	14
Erie, Pa.	†13	*	†13	18	14
Scranton, Pa.	†15	*	†15	20	14
Altoona, Pa.	†15	*	†15	20	14
Dover, Del.	†15	3	†18	20	14
Wilmington, Del.	†15	3	†18	20	14
Boston, Mass.	16	2	18	20	15
Springfield, Mass.	16	2	18	20	15
Worcester, Mass.	16	2	18	20	15
Fall River, Mass.	16	2	18	18	15
Providence, R. I.	16	2	18	20	15
Hartford, Conn.	16	2	18	20	14
New Haven, Conn.	16	2	18	20	15
Atlantic City, N. J.	16	2	18	20	13
Camden, N. J.	16	2	18	20	13
Trenton, N. J.	16	2	18	20	13
Annapolis, Md.	16	4	20	22	13
Baltimore, Md.	16	4	20	22	13
Hagerstown, Md.	16	4	20	22	13
Richmond, Va.	16	5	21	23	13
Wilmington, N. C.	16	4	20	22	13
Brunswick, Ga.	17	4	21	23	**15.5
Jacksonville, Fla.	17	5	22	24	14.5

*3-cent state tax is collected by retail dealer and paid by him directly to state.

†The Atlantic Refg. Co. recognizes a 2c a gal. discount from its posted tank wagon market on sales to dealers for purposes of resale.

The company also recognizes a maximum discount of 2c per gallon to commercial accounts under contract for one year.

**Georgia kerosene prices include 1c state tax.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.2	18
Detroit	16.4	17.9	19.7
Kansas City	†14.9	†16.4	†18.2
Milwaukee	15.4	*18.9	*20.7
Minneapolis	*18.7	*20.2	*22
St. Louis	14.6	16.1	17.9
New York		17	23
Boston		19	23

*Includes 2c state tax. †Includes 1c city tax.

Petroleum Spirits

(Solvent)

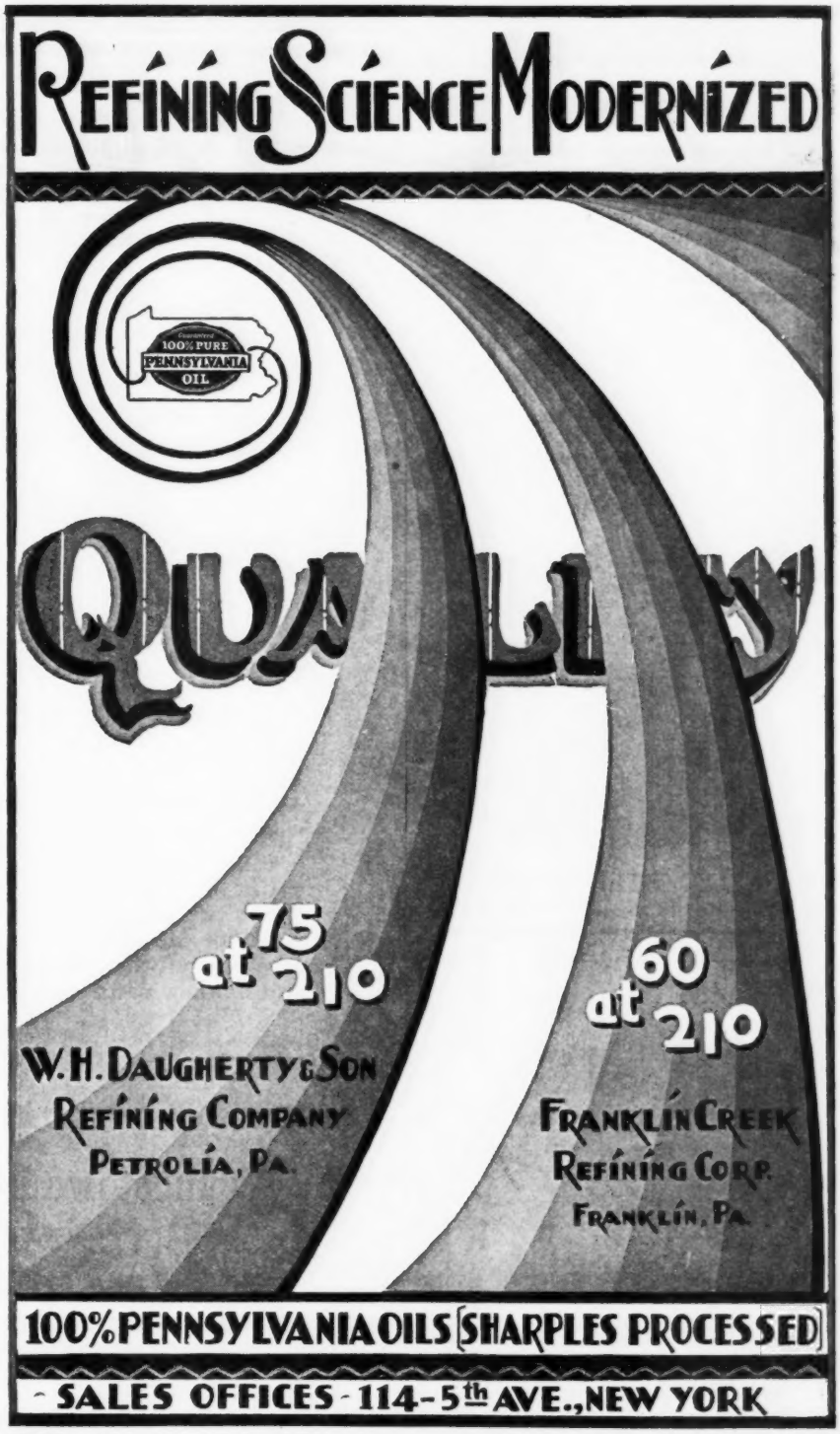
Tank Cars	
New York refineries	11.00
New England refineries	11.00
Philadelphia refineries	11.00
Tank Wagons or Steel Barrels	
New York City	17
New England	19
New Jersey	16
Pennsylvania	18

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline				Oil
	T.W.	Tax	T.W.	S.S.	T.W.
ONTARIO					
Toronto	19.5	3	22.5	26	21
Ottawa	17.5	3	20.5	24	21
Cochrane	24.5	3	27.5	..	26
Ft. William	22.5	3	25.5	29	22.5
MANITOBA					
Winnipeg	21.5	3	24.5	28	21.5
SASKATCHEWAN					
Regina	26	3	29	33	26
ALBERTA					
Edmonton	27.5	3	30.5	34	27.5
Calgary	23.5	3	26.5	30	23.5
BRITISH COLUMBIA					
Vancouver	22	3	25	29	23
QUEBEC					
Montreal	20.5	5	25.5	28	22
Quebec City	21.5	5	26.5	30	23
Three Rivers	21.5	5	26.5	30	23
NEW BRUNSWICK					
St. John	24	5	29	33	25
Moncton	24	5	29	33	25
NOVA SCOTIA					
Halifax	24	5	29	33	25
Sydney	24	5	29	33	25
PRINCE EDWARD ISLAND					
Charlottetown	24	5	29	33	25

Note: In districts surrounding these points 1c additional is added to city price.


REFINING SCIENCE MODERNIZED
Guaranteed 100% PURE PENNSYLVANIA OIL
75 at 210
W. H. DAUGHERTY & SON REFINING COMPANY PETROLIA, PA.
60 at 210
FRANKLIN CREEK REFINING CORP. FRANKLIN, PA.
100% PENNSYLVANIA OILS SHARPLES PROCESSED
SALES OFFICES - 114-5th AVE., NEW YORK

HOW MUCH HAS IT COST YOU

For the Oil That Has Leaked Away?

This loss is unnecessary, and could be prevented by the use of Brown Oil-tight Storage Tanks

NO EXTRA COST

Send us your inquiry

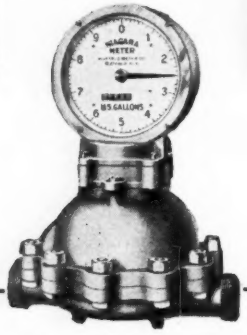
BROWN SHEET IRON & STEEL CO.

St. Paul, — Minnesota

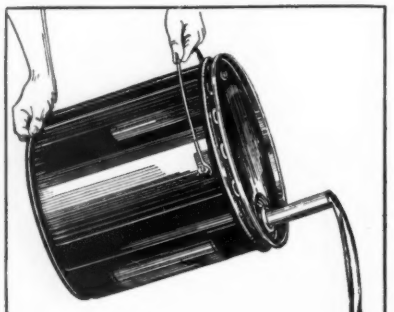
ACCURACY

Regardless of how much or how little gasoline or oil passes through a Niagara meter, it accurately registers and records, preventing loss, theft or favoritism.

And a Niagara repays its cost by enabling you to sell and profit on the gasoline and oil that would be unaccounted for without a meter! Send today for our newest catalogue.



BUFFALO METER COMPANY
2889 Main St., Buffalo, N. Y.



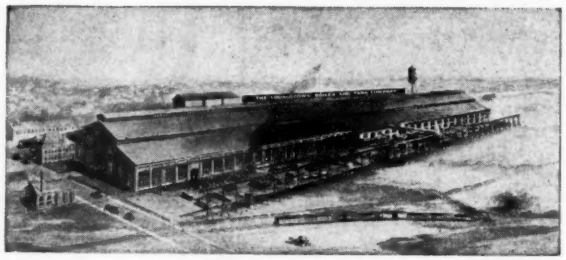
Only the POR-PAIL has these conveniences

Only in the Por-Pail do you get smooth and accurate pouring and greater strength *plus* permanent utility. That is why it is being used by those who find it profitable to give their customers that extra service.

Ask us.

WILSON & BENNETT MFG. CO.
6520 S. Menard Ave.
CHICAGO

Youngstown
"KEENE TANKS MADE"
STANDARDIZED
REG. U.S. PAT. OFF.



GOOD COMMON SENSE

—We wouldn't be so rash as to claim that you could drop a Youngstown Tank from the top of the Woolworth Tower without noticeable injury.

—We wouldn't go so far as to say that a Youngstown Tank would remain intact if placed in the path of the Twentieth Century's nocturnal run.

—But we *will* go on record and state that Youngstown Tanks are the best dollar's worth of steel storage investment you can buy—that they are guaranteed leak proof for 5 years and that they are winning thousands upon thousands of new users each year.

Just use your own good common sense.

Write for free copy of Bulletin 15.

The Youngstown Boiler & Tank Company
Offices in Principal Cities
YOUNGSTOWN OHIO

Gasoline
Light Fuel
Neutrals
600 Steam Refined

Guaranteed 100% PURE PENNSYLVANIA OIL
Permit No. 26

Oil City E
Warren E
Warren D
650 Steam Refined

Swan-Finch 100% Pennsylvania Motor Oils are compounded to any specification, and shipped in bulk or drums either to you or direct to your customers. Ask us for quotations on your requirements.

SWAN-FINCH REFINING CO. 205 E. 42nd ST., NEW YORK

SWAN FINCH
100% Pennsylvania Oils

Crude Oil Prices (in Effect March 25, 1929)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$4.10
Bradford District Oil in National Transit Lines (Bradford District)	4.10
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	4.00
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	4.00
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.90
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	3.85
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.35
Corning Grade in Buckeye Pipe Lines (Ohio)	1.75
Corning, O., heavy grade	1.65
Somerset Oil in Cumberland Pipe Lines (Kentucky)	1.50
Ragland Grade in Cumberland Pipe Lines (Kentucky)	$0.60

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines	$1.50

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective Jan. 25, 1929

Wooster(Oct. 17)*	$1.62	Princeton	$1.45
Lima	1.50	Illinois	1.45
Waterloo	1.20	Plymouth	1.18
Indiana	1.27	West Kentucky	1.53

*Wooster crude run prior to Oct. 17, 1928 takes price of $1.52.

Pure Oil Co.

Midland, Midland County, Michigan	$1.64

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia	$1.90
Oil Springs	1.97

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective Jan. 25, 1929

Below 25	$0.60	35-35.9	$1.17
25-25.9	0.66	36-36.9	1.20
26-26.9	0.72	37-37.9	1.23
27-27.9	0.78	38-38.9	1.26
28-28.9	0.84	39-39.9	1.29
29-29.9	0.90	40-40.9	1.32
30-30.9	0.96	41-41.9	1.35
31-31.9	1.02	42-42.9	1.38
32-32.9	1.08	43-43.9	1.41
33-33.9	1.11	44 and above	1.44
34-34.9	1.14		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

Jan. 24, 1929, same schedule as Prairie in above fields.

Mirando, Tex	$0.80
Salt Flat, Tex	0.80

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

Jan. 25, 1929, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades:

Below 26	$0.60	29-29.9	$0.80
26-26.9	0.65	30-30.9	0.90
27-27.9	0.70	31-31.9	1.00
28-28.9	0.75		

Glasscock, Crane, Upton, Winkler Counties	0.65
Chalkfield (Howard Co.)	0.65
Iatan district	0.93
Corsicana heavy	0.80
Luling	0.80

Carter Oil Co.

(Oklahoma and Kansas)

Jan. 24, 1929, same schedule as Prairie except Carter does not post oil below 25.

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Effective Jan. 24, 1929

Hutchinson and Carson Counties:

Below 32	$0.72	38-38.9	$0.96
32-32.9	0.78	39-39.9	0.99
33-33.9	0.81	40-40.9	1.02
34-34.9	0.84	41-41.9	1.05
35-35.9	0.87	42-42.9	1.08
36-36.9	0.90	43-43.9	1.11
37-37.9	0.93	44 and above	1.14

Wheeler County:

Below 30	$0.70	37-37.9	$1.03
30-30.9	0.76	38-38.9	1.06
31-31.9	0.82	39-39.9	1.09
32-32.9	0.88	40-40.9	1.12
33-33.9	0.91	41-41.9	1.15
34-34.9	0.94	42-42.9	1.18
35-35.9	0.97	43-43.9	1.21
36-36.9	1.00	44 and above	1.24

Gray County:

Below 29	$0.69	37-37.9	$1.08
29-29.9	0.75	38-38.9	1.11
30-30.9	0.81	39-39.9	1.14
31-31.9	0.87	40-40.9	1.17
32-32.9	0.93	41-41.9	1.20
33-33.9	0.96	42-42.9	1.23
34-34.9	0.99	43-43.9	1.26
35-35.9	1.02	44 and above	1.29
36-36.9	1.05		

WEST TEXAS

Humble Oil & Refining Co.

Effective July 26, 1928

Winkler, Crane, Upton, Crockett, Howard and Pecos Counties	$0.65

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto and **Cotton Valley.

Effective Jan. 26, 1929

Below 28	$0.78	36-36.9	$1.20
28-28.9	0.84	37-37.9	1.23
29-29.9	0.90	38-38.9	1.26
30-30.9	0.96	39-39.9	1.29
31-31.9	1.02	40-40.9	1.32
32-32.9	1.08	41-41.9	1.35
33-33.9	1.11	42-42.9	1.38
34-34.9	1.14	43-43.9	1.41
35-35.9	1.17	44 and above	1.44

**Cotton Valley, below 36, $0.75. Beginning with 36-36.9, same schedule as above.

Smackover, below 24		$0.75
do	24 and above	0.90
Bellevue		1.20
*Urania, La		0.90
†East El Dorado		0.75

*Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

Jan. 25, The Texas Co. same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.60; 25-25.9, $0.66; 26-26.9, $0.72; 27-27.9, $0.78.

Jan. 26, Magnolia Petroleum met Standard chedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

Effective Jan. 28, 1929

Below 28	$0.70	30-30.9	$0.82
28-28.9	0.74	31-31.9	0.86
29-29.9	0.78	32 and above	0.90

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective Jan. 26, 1929

Grades A	$1.20	29-29.9	$1.15
Grades B:		30-30.9	1.17
Below 25	1.05	31-31.9	1.19
25-25.9	1.07	32-32.9	1.21
26-26.9	1.09	33-33.9	1.23
27-27.9	1.11	34-34.9	1.25
28-28.9	1.13	35 and above	1.27

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Pierce Junction, Sugarland and Raccoon Bend. All other fields are Grades A only

New Equipment

The Natural Gas Equipment Co., Los Angeles, Calif., has published a pamphlet on Wilgus gas fuel regulators, including a description of the first regulator designed for satisfactorily handling boiler pressures up to 350 pounds.

Some of the features of these regulators are that they are economical, have sensitive action, easy pressure adjustment, complete interchangeability, virtually complete elimination of friction by mounting all moving parts in ball bearings, and easy convertibility from fuel to back-pressure regulator.

With its new Type T-4 gas fuel regulator, the company claims to be the first to enter the field of modern high-pressure steam plant operation with a satisfactory regulator.

The circular contains pressure, dimensions and weight specifications for ordering and installation.

* * *

Quincy Compressor Co., Quincy, Ill., claims that through actual tests the change to V-belts on compressors effects a saving in power of from 20 to 30 per cent, basing its statement on these claims:

First, where the power required for operating the compressor is sufficiently less, a smaller motor may be used—a saving in the initial cost of the unit. Second, the day-in-and-day-out saving in electricity.

The V-Belt reduces friction by permitting the bearings of motor and compressor to operate at their own natural tension without the additional tension caused by a tight belt, and by the elimination of idlers for maintaining belt tension. Other features of the V-Belt are that they do not jump off the pulley and require little attention.

* * *

The Campbell Engineering Co., Industrial Office Bldg., Newark, N. J., announces it has been granted patent rights on the Campbell controller for oil stills, known as the "Pumpkinseed type" and "Watermelon type." Many of these controllers are already in use in refineries throughout the United States. They record and indicate the number of pounds of steam used by the still per hour. The flow rate may be varied at will. Campbell steam controllers may be used in a very wide range of installations—wherever steam flow is to be controlled to a low pressure vessel at constant flow rate.

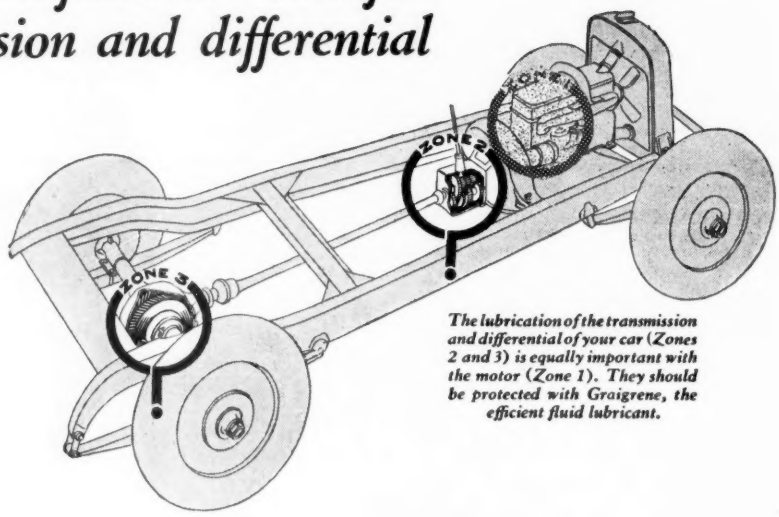
This Spring - - -

get the long green with

GRAIGRENE

[PRONOUNCED GREY-GREEN]

—the efficient fluid lubricant for transmission and differential



The lubrication of the transmission and differential of your car (Zones 2 and 3) is equally important with the motor (Zone 1). They should be protected with Graigrene, the efficient fluid lubricant.

Dealers who stock Graigrene, the perfect fluid lubricant for transmission and differential, will make MONEY this spring.

Motorists are swiftly awakening to the need for a fluid lubricant in these vital zones of their car—are learning that heavy grease cannot and will not give proper protection to swift moving gears. Heavy grease channels leave gear teeth un-lubricated, repair bills usually follow.

Graigrene is *fluid*—it flows between metal parts all the time—maintains a constant, tough ribbon of protective oil *always.* That's *lubrication!* Your customers want it—will pay for it.

Every motorist in your community will need 7 pounds of Graigrene for the "spring overhaul"—trucks and busses require 40 pounds—you make BIG PROFITS on every pound. Be ready to meet this demand, to get the long green with Graigrene. Write or wire us for particulars today.

Manufactured by

Viscosity Oil Company

Established 1894

W. D. SIMMONS, President

Central Manufacturing District, CHICAGO

Phone Yards 7196

Crude Oil Prices (in Effect March 25, 1929)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective March 14, 1927

Grades A.....$1.20	*Grades B.....$1.15
‡Grades B (light crude):	
35-35.9.....$1.37	38-38.9.....$1.43
36-36.9..... 1.39	39-39.9..... 1.45
37-37.9..... 1.41	40 and above.... 1.47

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on all below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective Jan. 25, 1929)

‡Salt Creek 29-29.9	$0.90
" " 30-30.9	0.96
" " 31-31.9	1.02
" " 32-32.9	1.08
" " 33-33.9	1.11
" " 34-34.9	1.14
" " 35-35.9	1.17
" " 36-36.9	1.20
" " 37 and above	1.23
Elk Basin	1.36
Grass Creek light	1.36
Big Muddy	$1.28
Lance Creek	1.38
Rock Creek	1.18
Mule Creek	1.10
Rex Lake	1.10
‡Osage	1.38
‡Cat Creek, Mont.	1.48
Sunburst, Mont.	1.65
‡Hogback, N. Mex.	1.53
Artesia, N. Mex.	1.08

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

***Standard Oil Co. of California**

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach	Inglewood Torrance	Olinda-Brea Canon Richfield	Athens-Rosecrans Dominguez	Elwood Terrace	Whittier La Habra	Coyote Hills	Santa Fe Springs	Newhall McKittrick †Kern River	Midway Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Montebello	Kettleman Hills	*Santa Maria (Orcutt)	*Ventura
14-14.9	$ .70	$ .70	$ .70	....	....	$ .70	$ .70	....	$ .50	$ .50	$ .50	$ .50	$ .50	$ .70	....	$ .65	$ .70
15-15.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
16-16.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
17-17.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
18-18.9	.75	.75	.75	....	....	.75	.75	....	.50	.56	.56	.56	.56	.70	....	.70	.75
19-19.9	.80	.80	.80	....	....	.80	.80	....	.50	.62	.62	.62	.62	.75	$1.65	.70	.80
20-20.9	.85	.85	.85	....	....	.84	.84	....	....	.68	.68	.68	.68	.80	for	.70	.85
21-21.9	.89	.89	.89	....	....	.88	.88	.89	....	.74	.74	.74	.74	.85	55°	.86	.86
22-22.9	.93	.93	.93	....	....	.91	.91	.92	....	.80	.80	.80	.80	.90	gravity	.87	.87
23-23.9	.97	.97	.97	....	....	....	.94	.95	....	.85	.85	.85	.85	.95	and	.90	.90
24-24.9	1.01	1.01	1.01	1.01	....	....	.97	.98	....	.90	.90	.88	.88	.98	over	.94	.94
25-25.9	1.05	1.05	1.05	1.05	....	....	1.00	1.01	....	.95	.95	.91	.91	1.01	....	.98	.98
26-26.9	1.09	1.09	1.09	1.09	....	....	1.04	1.04	....	1.00	1.00	.94	.94	1.04	....	1.02	1.02
27-27.9	1.13	1.13	1.13	1.13	....	....	1.08	1.07	....	1.05	1.05	.98	.97	1.07	....	....	1.06
28-28.9	1.17	1.17	1.17	1.17	....	....	1.12	1.10	....	1.10	1.10	1.02	....	1.10	....	....	1.10
29-29.9	1.21	....	1.21	1.21	....	....	1.16	1.15	....	1.16	1.16	1.06	....	1.13	....	....	1.14
30-30.9	1.25	....	1.25	1.25	....	....	1.20	1.20	....	1.22	1.22	1.10	....	1.16	....	....	1.18
31-31.9	1.30	....	....	1.30	....	....	....	1.25	....	1.28	1.28	1.14	....	....	....	....	1.23
32-32.9	1.35	....	....	1.35	....	....	....	1.30	....	1.34	1.34	1.18	....	....	....	....	1.28
33-33.9	....	....	....	1.41	....	....	....	1.35	....	1.40	1.40	1.22	....	....	....	....	....
34-34.9	....	....	....	1.47	$1.16	....	....	1.40	....	....	1.46	1.26	....	....	....	....	....
35-35.9	....	....	....	1.53	1.22	....	....	1.45	....	....	....	1.30	....	....	....	....	....
36-36.9	....	....	....	1.59	1.28	....	....	1.50	....	....	....	....	....	....	....	....	....
37-37.9	....	....	....	1.65	1.34	....	....	1.55	....	....	....	....	....	....	....	....	....
38-38.9	....	....	....	1.71	1.40	....	....	1.60	....	....	....	....	....	....	....	....	....
39-39.9	....	....	....	1.77	1.46	....	....	1.65	....	....	....	....	....	....	....	....	....
40-40.9	....	....	....	1.83	1.52	....	....	....	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	1.89	1.58	....	....	....	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	1.95	1.64	....	....	....	....	....	....	....	....	....	....	....	....

*Santa Maria and Ventura postings are by Union Oil Co. Union Oil Co. posts same prices in all above fields as Standard except in Montebello and Wheeler Ridge. Elwood Terrace is posted at same prices by Standard. Standard does not contract for crude testing 11-13.9 gravity, but pays 45c a barrel when purchased.
†Kern River down to 12° gravity is 50c; 11-11.9 is 45c.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	Mar. 25	Mar. 18
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, ...cwt.	$1.55	$1.55
Silicate of Soda 40 deg. tank cars....cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums ....cwt.	$0.80	$0.80
Sal Soda wks....	$0.90-1.00	$0.90-1.00
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton....	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks....	$18.50	$18.50
Sulfur, flowers of....cwt.	$3.50-4.50	$3.50-4.50
Liquid Chlorine, tank cars, wks....lb.	3.00-4.50	3.00-4.50

Compounders' Supplies

	Mar. 25	Mar. 18
Vegetable Oils		
Linseed carloads, spot....lb.	10.20	10.20
Tanks, spot....	9.30	9.30
Soya Bean, Tanks, coast, lb.	9.50-9.75	9.50-9.75
Oleic Acid		
Distilled, tanks....lb.	10.00	10.00
Distilled, bbls....lb.	11.00	11.00
Saponified, tanks....lb.	10.50	10.50
Saponified, bbls....lb.	11.00	11.00
Lard Oils		
Prime Winter Strained....lb.	15.50	15.50
Extra Winter Strained....lb.	13.625	13.625
Extra....lb.	13.375	13.375
Extra No. 1....lb.	13.25	13.25
No. 1....lb.	13.125	13.125
No. 2....lb.	12.875	12.875
Tallow oil....lb.	11.625	11.625
Neatsfoot Oil		
Pure, bbls....lb.	15.00	15.00
Extra, bbls....lb.	13.50	13.50
No. 1 bbls....lb.	13.375	13.375
Cold Pressed....lb.	19.00	19.00
Fish Oils		
Menhaden Oil		
Light Pressed....gal.	72-73	72-73
Light Pressed, tank cars, N.Y. ....gal.	65	65
White bleached....gal.	78-79	78-79
Yellow bleached....gal.	75-76	75-76
Whale, extra winter bleached, ...gal.	82	82
Naval Stores		
Steam distilled turpentine, N. Y....gal.	56	54
Steam distilled turpentine, Savannah....gal.	51	49
Gum turpentine, N. Y....gal.	61	58
Gum turpentine, f.o.b. cars Savannah....gal.	57	54
Wood Rosin F, N. Y....bbl.	$7.80	$7.55
Wood Rosin F, Savn'h..bbl.	$7.00	$6.75
Gum Rosin B, N. Y....bbl.	$7.60	$7.60
Gum Rosin B, f.o.b. cars Savannah....bbl.	$6.90	$6.85
Rosin oil, pure....gal.	62	62
Rosin oil, compounded...gal.	51	51
Pine Tar		
Kiln burnt....bbl.	$13.00-14.00	$13.00-14.00
Retort ....bbl.	$13.50-14.50	$13.50-14.50
Alcohol		
Denatured, Formula 5, in bbls., per gal....	55-62	55-62

OIL STOCKS AND FINANCES

National Petroleum News

Atlantic to Retire Preferred May 1

NEW YORK, March 23.—Atlantic Refining Co. is reorganizing its capital structure by increasing its common stock issue by 666,667 shares and retiring its $20,000,000 of 7 per cent preferred stock.

Stockholders of April 1 record will have the right to subscribe to the common stock at $40 a share in the proportion of one new share for each common share held that date. The preferred stock will be retired May 1 at 115 and accrued interest.

Atlantic Refining common stock has been selling recently around 60.

Magnolia Petroleum Enlarges Board

CLEVELAND, March 22.—The boards of directors of the Magnolia Petroleum Co. and the Magnolia Pipe Line Co. were increased from 11 to 13 members at the annual meeting March 12 in Dallas, Texas. One vacancy was filled and 10 directors re-elected.

Magnolia Petroleum's directors and the offices they hold are: E. R. Brown, president; B. H. Stephens, vice-president and general manager; W. H. Francis, vice-president and general counsel; W. C. Proctor, vice-president, treasurer and assistant secretary; E. E. Plumly, vice-president and manager of refineries; F. V. Faulkner, vice-president and manager of production; E. P. Angus, vice-president and manager of sales; D. C. Stewart, vice-president and manager of pipe lines; Ralph H. Kinsloe, vice-president; Courtenay Marshall, secretary and assistant treasurer; D. A. Little assistant general manager, and F. M. Lege, Jr., and R. Waverly Smith, directors.

The new men on the board are Messrs. Kinsloe, Little and Angus.

Other officers elected are: A. S. Hardwicke, assistant general counsel; E. D. Smith, J. V. Farnsworth and W. L. Neill, assistant secretaries; R. J. Blackburn, W. E. Elliott, W. L. Holmes, L. S. Sinclair, G. A. Young, Jr., Roland Martin, E. N. Johnson, W. H. Marchbanks, and L. Y. Newman, assistant treasurers, and W. H. Johnson, assistant treasurer and cashier.

Indian Rights Expire April 5

CLEVELAND, March 23.—Rights of stockholders to subscribe for one share of Indian Refining Co. common stock for each four shares of record at close of business March 15, expire April 5, J. H. Graham, president, has announced. The subscription price is $21 a share for the $10 par stock. Purchase warrants must be deposited with cash in full at the Guaranty Trust Co., New York.

Superior Issues Stock For Moody Corp.

NEW YORK, March 23.—The Superior Oil Corp. has listed 960,000 additional shares of no par common stock on the New York Stock Exchange. This block brings Superior's total outstanding capital stock to 2,330,938 shares of the authorized 2,500,000 shares.

The company is using 560,000 of the new listing to exchange for 333,200 common shares of the Moody Corp. which has acreage in west Texas and the Gulf Coast. The remaining 66,800 Moody shares are now held by Superior.

Directors also have authorized sale of 400,000 shares of the additional stock, which are contracted for at not less than $7 a share net to the company, to provide funds with which to liquidate certain temporary bank loans aggregating $1,235,441, drill additional wells to protect its holdings and for corporate expansion.

Since May 25, 1928, Superior has acquired additional developed leases in Oklahoma, Kansas, Louisiana, Texas and Kentucky totaling 1,024 acres and 30,587 acres of undeveloped leases in Indiana, Kansas, Kentucky, Oklahoma and Texas, at a total cost of $687,834. In 1928 company produced 1,046,876 barrels of crude oil, compared with 1,480,266 the previous year, and 391,792 gallons of gasoline, against 441,926 in 1927.

After giving effect to acquisition of Moody Corp. and sale of 400,000 shares of capital stock, balance sheet as of Sept. 30, 1928, shows cash of $535,000, receivables $425,000 and inventories of $555,000, total current assets of $1,515,000 and current liabilities of $2,285,000. Total assets were listed at $18,525,000.

Warner-Quinlan Co. Finances Growth

CLEVELAND, March 25.—Warner-Quinlan Co. is financing its purchase of control of the Municipal Service Corp., New York, and its expansion of refining facilities with an issue of $7,000,000 10-year 6 per cent convertible gold debentures. The offering price is 98½ to yield more than 6.20 per cent.

The debentures are callable at 105 and accrued interest before March 1, 1930, and at a premium 0.50 per cent less for each elapsed year thereafter. The debentures are convertible into 50 common shares for each $1000 debenture.

W. W. McFarland, president, in a letter to Hayden, Stone & Co., the underwriter, said the company's refining capacity was 12,000 barrels a day and was being increased to 18,000 barrels a day. Its crude production from the developed part of its 32,000 acres in Texas and Mexico, amounts to 6600 barrels a day.

It has bulk filling stations at New Rochelle, Long Island City and Inwood, N. Y., and Secaucus, N. J. It controls through ownership, part ownership, or lease in and around New York city 131 service stations. Its newly acquired subsidiary, Municipal Service Corp., has 58 service stations in New York city and nearby New York state points.

Warner-Quinlan's earnings together with its share of the profits in the Municipal Service Corp. amounted to $2,288,098 last year.

The company also is offering stockholders of March 28 record one share of common stock for each four held. The price is $32 a share which is approximately $7 a share less than the current market price. For this offering 122,089 shares are required.

* * *

Warner-Quinlan Buys N. Y. Distributor

NEW YORK, March 23.—Merger of New York City's two large Independent oil distributing companies was effected last week when the Warner-Quinlan Co. announced it had gained controlling interest in the Municipal Service Corp. through the purchase for it of a block of Municipal's stock by Hayden, Stone & Co.,

(*Continued on Page* 111)

Distillation—Fractionation

Fifty-four articles have been published in the past year in *National Petroleum News* on the subject of increasing yield of products—improving their quality—reducing manufacturing costs—equipment design—

This averages a little more than one article per issue on this one phase of refinery operation. For your file reference we list them below:

1929

Improving fractionation in cracking systems March 13, p. 78
1928 refinery progress March 6, p. 69
Still is most important of absorption plant March 6, p. 72

1928

Pipe still application to vacuum distillation Dec. 5, p. 83
Single pass pipe still handles 2500 barrels crude Dec. 5, p. 86
Flash vaporization of petroleum to produce lubes Dec. 5, p. 93
Motor oil specified on resistance to distillation Oct. 3, p. 90
Better fractionating equipment saves heat Sept. 26, p. 91
How a refinery cut costs in half Sept. 19, p. 22
Gravity, volume corrections for temperature Sept. 5, p. 110; Sept. 19, p. 74
Gas and gasoline analysis in plant control Sept. 5, p. 79
Narrow distillation range oils best for absorption Aug. 8, p. 54
Distillation test in determining vapor pressure Aug. 1, p. 58
Light fractions from stabilizer July 25, p. 21
How important oil tests are applied Aug. 22, p. 81; Aug. 15, p. 73; Aug. 1, p. 80; July 25, p. 29; July 18, p. 26; July 11, p. 60
Improving efficiency of shell stills July 11, p. 69
Gasoline recovery from gases, Bayer charcoal process July 4, p. 67; June 27, p. 97
Zilwaukee refinery adapted to small field June 20, p. 23
Vertical steam still for fat oil distillation June 6, p. 37
Saves $80,000 yearly with auxiliaries June 6, p. 32
Fractionation theory and practice May 23, p. 102
Careful refining and selling build trade May 23, p. 56
Distillation process control by laboratory May 16, p. 57
Cutting costs in steam raising May 16, p. 49; May 9, p. 49; May 2, p. 17
New types of distilling equipment May 9, p. 76
Halves fuel costs with old shell still May 2, p. 81
Pipe still economy in making Penna. lubes May 2, p. 56
Good products at low cost Apr. 25, p. 85; Apr. 18, p. 61; Apr. 11, p. 54
Careful fractionation cuts costs Apr. 25, p. 48
Neutralizing lube oils with ammonia Apr. 11, p. 111
Bigger profits for refiners in 1928 Apr. 11, p. 28; Apr. 4, p. 25; Mar. 28, p. 28; Mar. 14, p. 42
Natural gasoline industry must make new products Apr. 4, p. 74; Feb. 1, p. 49; Jan. 25, p. 17
Technical control of refinery processes Mar. 14, p. 144; Mar. 7, p. 51; Feb. 29, p. 76
Shell still as big volume distilling unit Mar. 7, p. 60; Feb. 29, p. 63
New device burns sludge coke under boilers Mar. 7, p. 101

The above list of articles is for your convenience in locating them in your file.

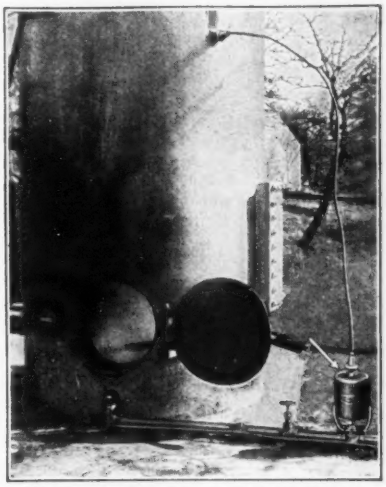
If you wish extra back copies, we shall be glad to supply them at 25c a copy. However, our stock of back numbers is limited and we are entirely out of some issues.

On numbers that are exhausted, we can have photostat copies made of the pages you wish at a cost of 40c per page, negative proof.

Libraries in the larger cities generally keep back files of *National Petroleum News* complete.

National Petroleum News
Main Office: 1213 West Third St.
Cleveland, Ohio

For Crude Oil Treating Tanks



Tycos Self-Acting Regulator Controlling Temperatures in Crude-Oil Treating Tank

Tycos Self Acting Temperature Regulator

Constant temperatures in gas fired crude oil treating systems are insured by the TYCOS SELF-ACTING TEMPERATURE REGULATOR. With a tendency towards temperature drop, the regulator valve opens to admit additional gas fuel to the burner; with tendency towards temperature increase the control valve throttles down to restrict the gas supply to the burner.

Through proper control of crude oil treating temperatures, the TYCOS SELF-ACTING TEMPERATURE REGULATOR insures more uniform treating conditions, eliminates dangers of overheating due to excessive temperatures, and maintains the gravity of the crude through continually holding treating temperatures constant.

The simplicity, ruggedness and dependability of the TYCOS SELF-ACTING TEMPERATURE REGULATOR installation makes it particularly adaptable to crude oil treating systems.

The TYCOS line of temperature and pressure indicating, recording and controlling instruments is complete for every gasoline plant or refinery requirement.

Our experience covering a period of years in instrument manufacture and applying these instruments in the oil industry is at your disposal.

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INDICATING-RECORDING-CONTROLLING

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MANUFACTURING DISTRIBUTORS IN GREAT BRITAIN SHORT & MASON, LTD., LONDON

Filters—to improve products —to utilize waste products

OLIVER United filters are serving a variety of purposes in refineries.

They are helping to improve products as in the case of contact treated oils and distillates.

They are also making it possible to utilize waste products as in the case of spent doctor solutions.

Filters, properly applied, offer a solution to many a refining problem.

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Transactions in Oil Shares on New York Stock Exchange

1928 High	1928 Low	1929 High	1929 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Mar. 23 Sales	First	High	Low	Last	Change
43⅞	27⅛	42⅝	30⅛	(sh) 922,075	N.P.	Amerada Corp.	50cQ	Jan. 31, 29	15,200	34	34¾	32¾	33½	— ½
85	51¼	64¾	44	(sh) 209,180	N.P.	American Republics Corp.	....	.....	14,400	55	61⅛	54	53	— 3¼
53¾	37½	47	43	$56,000,000	$25	Associated Oil	50cQ	Mar. 31, 29	140	43¼	44½	43	44	+ ⅜
62½	50	68	53½	50,000,000	25	Atlantic Refining	‡25cQ	Mar. 15, 29	251,600	65	65⅞	61¼	62	— 2⅜
118¼	114½	117⅝	115	20,000,000	100	do pfd	$1.75Q	Feb. 1, 29	140	116½	116¾	115½	115½	— ⅞
53	20	46¼	38⅛	47,261,125	25	Barnsdall Corp. A	50cQ	Feb. 5, 29	194,400	46⅜	46¾	43	43½	— 2½
51⅜	20	49	38⅛	300,525	25	do B	50cQ	Feb. 5, 29	400	48	48	45¾	46	+ 4
24½	12¼	28½	20	(sh) 956,075	N.P.	Beacon Oil	....	.....	5,400	24	24	22	22¼	— 1⅜
36	25¼	29⅞	26¾	$51,524,150	$25	California Petroleum	....	Jan. 1, 29	.....	.....	.....	.....	.....	.....
94⅞	68	81¼	63	21,031,400	100	General Asphalt	....	.....	13,500	70⅞	71⅜	67½	67½	— 3
141	110⅛	120¼	106	6,628,200	100	do pfd	$1.25Q	Mar. 1, 29	900	111	113	108	108	— 1
167	79	107	80⅛	25,000,000	100	Houston Oil	....	.....	28,300	99	106½	91	96	— 1⅜
38⅜	21⅜	35¼	30	(sh) 1,333,157	N.P.	Independent Oil & Gas	37½cQ	Jan. 31, 29	34,200	34	34¾	33	33½	0
39⅝	9	42¾	29	$4,299,190	$10	Indian Refining	....	Dec. 15, 20	218,000	36¼	48⅜	36	38⅛	+ 2¼
37¼	8½	42⅝	28	4,550,110	10	do ctfs	....	.....	56,700	35¼	40⅞	34⅜	36¾	+ 1¾
185	140	165	160	1,977,700	100	do pfd. new	$1.75Q	Apr. 1, 29	.....	.....	.....	.....	.....	.....
39⅛	27⅛	33	26¼	3,992,387	N.P.	Lago Oil & Transport	75cQ	Feb. 1, 29	13,500	70⅞	71⅜	67½	67½	— 3
19¾	9¾	18	13½	(sh) 1,187,298	N.P.	Louisiana Oil Refining	....	.....	5,000	30½	31¼	29	29½	— ¾
96	78	100	89	$4,000,000	$100	do pfd	$1⅝Q	Feb. 15, 29	22,000	15	15	14	14⅛	— ⅞
25⅛	12⅛	17¼	12	(sh) 330,000	N.P.	Maracaibo Oil	....	.....	30	91	92	91	91	— 1
49¾	33	47⅞	35⅞	(sh) 2,316,897	N.P.	Marland Oil Co.	....	Mar. 31, 27	1,500	17	17	16	16½	+ ½
360	250	275	242	$45,942,800	$100	Mexican Petroleum	$3Q	Jan. 20, 29	77,200	41¼	42⅜	39⅜	39¾	— 1¼
.....	.....	.....	.....	12,000,000	100	do pfd	$2Q	Jan. 20, 29	10	242	242	†242	242	+ 2
73	45⅛	69⅛	42½	(sh) 995,500	N.P.	Mexican Seaboard	....	Nov. 15, 24	143,100	54¾	56	50⅛	50¾	— 3¼
44½	25⅛	39⅞	30½	(sh) 1,857,461	N.P.	Mid-Continent	....	Aug. 1, 27	60,600	35	35¾	33¼	33⅜	— 1⅝
120½	103¼	121	120¼	$6,718,000	$100	do pfd	$1.75Q	Mar. 1, 29	.....	.....	.....	.....	.....	.....
7⅜	2⅜	5⅛	3¾	23,849,720	10	Middle States	....	July 1, 23	33,300	4⅝	5	4¼	4¼	— ⅜
5½	1½	3½	2¾	5,950,500	10	do ctfs	....	.....	7,800	3⅛	3½	3	3¼	+ ⅛
2¼	1	1½	1	(sh) 3,500,000	N.P.	Pacific Oil	....	.....	6,100	1⅜	1¼	1⅛	1⅛	0
55½	38¼	50	41⅜	$50,000,000	$50	Pan American P. & T.	....	Oct. 20, 27	4,500	46	47¼	45⅛	45⅜	— 1⅜
58⅞	37¾	51⅞	40½	121,101,400	50	do B	....	Oct. 20, 27	63,100	48	48⅞	45½	45½	— 2⅜
28⅜	15½	17½	14½	(sh) 400,000	N.P.	Pan American Western B.	....	Jan. 30, 27	700	15	15½	15	15½	+ ½
21⅜	11½	15¼	9½	(sh) 199,370	N.P.	Panhandle P. & R.	....	.....	8,700	11½	14½	11⅛	11⅜	+ ⅛
106¼	70	76	47½	$2,935,200	$100	do pfd	....	July 2, 23	200	68	70	68½	70	+ 5
53⅞	35¼	47	37¼	(sh) 2,406,803	N.P.	Phillips Petroleum	37½cQ	Apr. 1, 29	53,600	41	43¼	40½	41	+ ¼
5¼	½	3⅜	2¼	$29,622,925	$25	Pierce Oil	....	.....	45,300	3¼	*3⅜	3	3	— ⅛
50	16¼	51½	30	15,000,000	100	do pfd	....	Feb. 1, 22	39,400	50	*51½	48⅛	49¾	+ ⅜
6¾	3½	5⅛	4⅝	(sh) 2,500,000	N.P.	Pierce Petroleum	....	.....	19,100	5⅜	5½	5	5	— ⅛
64⅝	59½	65⅝	58	$60,636,450	$25	Prairie Oil & Gas	....	Aug. 31, 27	29,800	64½	64¾	60	60¾	— 3
.....	.....	59	53⅛	101,250,000	25	Prairie Pipe Line	‡75cQ	Mar. 31, 29	16,100	57¼	58	56⅛	57¼	+ ⅛
29⅞	16	25⅛	18¼	37,450,850	50	Producers & Refiners	....	Sept. 15, 23	7,400	22	23¾	21½	22⅛	— ⅞
49⅝	41	43	38½	2,845,350	50	do pfd	....	May 1, 25	610	42	46⅜	42	45	+ 3
31¼	19	28½	23½	75,959,250	25	Pure Oil Co.	25cQ	Mar. 1, 29	93,100	25½	27½	25	25⅛	— 1¼
119	108	115½	112	13,000,000	100	do 8% pfd.	$2Q	Apr. 1, 29	150	113	113¼	112	113	+ ⅛
56	23½	49⅜	40	47,127,725	25	Richfield Oil	50cQ	Feb. 15, 29	51,500	45⅜	46⅝	43	43½	— 1½
.....	.....	41⅞	33¾	(sh) 1,200,000	N.P.	Rio Grande Oil Co.	‡$1S.A.	Jan. 25, 29	154,100	39	42	37½	41	+ 2¼
64	44⅛	55¾	31¾	(sh) 546,646	$13.40	Royal Dutch N. Y. shares	$1.336	Feb. 8, 29	3,200	52⅝	52⅞	51⅜	51⅜	— 1¼
57½	39⅜	55¾	43	(sh) 65,203,000	£2	Shell Transport & T.	96.4c	Feb. 8, 29	700	46½	46½	46½	46½	+ 2½
39⅜	23¼	30¼	26	(sh) 12,254,979	N.P.	Shell Union Oil	35cQ	Mar. 31, 29	114,100	29	29⅛	28¼	28½	— ⅜
27¼	18⅜	23⅞	18¼	$8,357,280	$10	Simms Petroleum	40cQ	Mar. 15, 29	12,900	21⅛	21⅞	20	20	— 1⅛
46⅝	17⅜	45	36	5,494,095	N.P.	Sinclair Consolidated	....	May 31, 24	711,1u0	42	42½	38⅝	39½	— 2⅜
110	102½	111	109½	$16,025,200	$100	do pfd	$2Q	Feb. 15, 29	800	109¾	110	109¾	110	+ ⅛
42⅝	25	40	32⅞	27,396,590	25	Skelly Oil Co.	50cQ	Mar. 15, 29	27,600	36⅜	37½	34½	35	— 1⅛
80	53	73½	64	(sh) 13,016,435	N.P.	S. O. California	62½cQ	Mar. 15, 29	316,100	75⅜	81¼	72⅜	74⅛	— 1⅜
59¾	37¼	56⅛	48	$612,095,850	$25	S. O. New Jersey	‡25cQ	Mar. 15, 29	322,100	54	*56⅛	51⅞	53¾	+ ⅛
45½	28¾	45¾	38⅝	434,094,575	25	S. O. New York	40cQ	Mar. 15, 29	166,100	42¾	43½	41	41⅜	— 1⅛
77	31½	68½	57¼	(sh) 1,297,847	N.P.	Sun Oil	25cQ	Mar. 15, 29	3,900	65	65½	60⅛	61	— 2
110	100	105½	100	$5,000,000	$100	do pfd	$1.50Q	Mar. 1, 29	160	104¾	104¾	104	104½	0
14¼	2½	12	7	(sh) 1,304,698	N.P.	Superior Oil Corp.	....	Dec. 20, 20	435,900	10⅜	11¼	9½	9⅞	— ½
74½	50	68	57¼	$211,082,925	$25	The Texas Corp.	75cQ	Apr. 1, 29	618,100	65	67	64	64	— ¾
26½	12⅛	23⅞	16¼	8,380,340	10	Texas Pacific Coal & Oil	2½%s	Mar. 20, 29	91,100	21⅛	*23⅞	20½	21½	+ ⅝
41½	19⅜	38½	27⅛	(sh) 2,179,275	N.P.	Tide Water Oil Co.	20cQ	Mar. 31, 29	5,400	34	34½	30	34	+ ½
100⅛	86¼	97½	90⅛	$20,321,000	$100	do 5½% pfd.	$1.25Q	Feb. 15, 29	1,200	90½	92	90½	21¾	+ 1⅜
25	14¾	22	17½	(sh) 4,877,976	N.P.	Tide Water Associated	....	Aug. 1, 27	80,000	20½	21½	20	20¼	— ¼
91¾	81⅞	90	87	$72,989,200	$100	do pfd	$1.50Q	Apr. 1, 29	2,000	87¾	88	87¼	87¾	+ 1½
14½	6¾	13	9	(sh) 3,842,029	N.P.	Transcontinental Oil	....	.....	120,900	11	11⅜	9⅞	10¼	— ¼
58	42¾	52½	46	$40,858,375	$25	Union Oil of California	50cQ	Feb. 10, 29	26,300	51⅜	*52½	50	50	— 1¼
128½	110	150¼	121¼	31,101,200	100	Union Tank Car Co.	$1.25Q	Mar. 1, 29	2,600	142	142	136½	137½	— 4½
44¼	26	42⅞	33⅞	(sh) 488,359	N.P.	Warner Quinlan	50cQ	Apr. 2, 29	10,300	38¾	38¾	35½	36	— 2⅜
38	20⅛	37⅞	30¾	(sh) 490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 29	4,600	37⅞	37⅞	36	36½	— 1
22⅛	17¾	29¾	19½	(sh) 428,967	N.P.	Wilcox Oil & Gas	....	May 10, 28	14,600	26½	26⅞	23	24½	— 1⅞

*New High †New Low XEx-dividends ‡Also extras s-Stock Total Sales 4,869,040

Pittsburgh Stock Exchange

Transactions Week Ended March 22, 1929

	Sales	High	Low	Last	Change
Ark. Nat. Gas....	7,281	5½	5⅛	5⅜	+ ¼
do pfd.....	6,050	8½	8⅛	8¼	+ ⅛
Devonian Oil.....	364	6⅞	6¾	6⅞	0
Dixie Gas & Util..	620	12½	11¾	12	— ½
do pfd.....	40	75	70	70	— 5
Lone Star Gas....	1,670	72	70¾	71	—1
Plymouth Oil....	750	26½	24½	26	+1½
Salt Creek Cons...	50	4	4	4	— ¼

Pittsburgh Curb Market

Transactions Week Ended March 22, 1929

	Sales	High	Low	Last	Change
Leonard Oil & Dev.	300	6	6	6	+1
Phoenix Oil.....	2,600	.40	.40	.40	—.20

Financial Notes

Barnsdall Corp.—James A. Dunn, vice-president and secretary, was elected a director.

Sun Oil Co.—All officers re-elected for ensuing year.

Indiana Pipe Line Co.—All officers and directors re-elected.

Cities Service Co.—Cities Service Transportation Co. has purchased the 12,000-ton tanker J. A. Bostwick from the Standard Shipping Co. Earnings in 12 months ended Feb. 28, 1929, were $30,022,616 before reserves, as compared with $29,292,200 in preceding 12 months.

Penn Mex Fuel Co.—All retiring directors re-elected at annual meeting.

Sun Oil Co.—All directors re-elected at annual meeting.

Beacon Retiring Preferred

NEW YORK, Feb. 8.—Beacon Oil Co. retired Feb. 15 approximately $2,200,000 of 7½ per cent cumulative preferred stock. The call price was 110. Control of this company recently was purchased by the Standard Oil Co. of New Jersey.

Oil Company Earnings

	1928	1927
Gulf Oil Corp.....	$36,325,140	$13,707,627
Imperial Oil, Ltd.....	22,963,265	.....
Mountain & Gulf.....	‡645,023	‡711,125
National Transit.....	1,189,685	630,622
Ohio Oil Co.....	5,054,955	3,510,372
South Penn Oil.....	3,911,165	1,727,774
Standard of Kentucky...	4,745,604	4,492,008
Swiss Oil Corp.....	284,143	68,287
Vacuum Oil Co.....	37,659,458	25,559,899

‡Deficit before reserves.

Cleveland Stock Market

March 22	Par Value	Bid	Asked
Canfield Oil Co.....	$100	...	146
do pfd.....	100	102	...
Fred G. Clark.....	10	10¼	11
National Refining.....	25	36½	37
do pfd.....	100	132	138
Paragon Refining.....	25	25	26
do pfd.....	N.P.	43¼	45
do ctfs. of deposit.....	...	24	26½

Service Station of the Texas Pacific Company, erected at Ft. Worth, Texas. Union Metal Design No. R-225, Special.

Do Women Buy GASOLINE?

WOMEN are among the best customers of service stations, judging from a national survey recently made by a woman's magazine.

More than half of the wives of automobile owners drive the family car, and 85% of these women personally buy the gasoline and oil, according to the survey.

You can cash in on the business of women drivers if you have an attractive station such as that pictured above. Women like things neat, spick and span. And they'll go out of their way to find an orderly station with a courteous attendant. Then they come back again and again.

Union Metal stations have been designed with the thought in mind of providing *beautiful* as well as serviceable structures. These all-steel buildings are well-proportioned with pleasing lines and ornamented with classic columns. They command attention. They appeal to the feminine eye.

If you want to be sure of getting the patronage of women, start out right with a Union Metal Station. A card will bring you the whole story.

THE UNION METAL MANUFACTURING CO.

General Offices and Factory, Canton, Ohio

Branches—New York, Chicago, Philadelphia, Cleveland, Pittsburgh, St. Louis, Los Angeles, San Francisco, Jacksonville.

UNION METAL
ORNAMENTAL FILLING STATIONS

Standard Oil Stocks on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Sales	Week Ended Mar. 23 First	High	Low	Last	Change
22⅜	14⅞	18¾	16½	£4,126,460	£ 1	Anglo-American Oil	24.4c	June 6, 28	2,700	17	17	†16½	16⅜	— ⅛
21¼	15	18	14½	.....	....	do certificates	.....	.....	.....	.....	.....	.....	.....	.....
20½	14⅜	17	14⅜	.....	£ 1	do cts. non-voting	.....	.....	400	15⅜	15½	15⅜	15½	+ ⅞
5	1¼	2⅜	2	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	100	2¼	2¼	2¼	2¼	+ ⅛
9¾	3¼	....	....	$10,000,000	$50	do pfd	.....	.....	500	3⅞	4	3⅞	3⅞	0
56	44½	46½	40¼	$1,000,000	$25	Borne-Scrymser	‡$1S.A.	Oct. 15, 28	.....	.....	.....	.....	.....	.....
76	58	74¼	67	10,000,000	50	Buckeye Pipe Line	‡$1Q	Mar. 15, 29	800	70	70¼	69⅞	69⅞	+ ¼
161	117¼	160	140½	3,000,000	25	Chesebrough Mfg.	‡$1Q	Mar. 31, 29	200	160	*160	160	160	+12
23	16	29	17⅛	36,123,350	10	Continental Oil	.....	Dec. 15, 27	188,700	27⅜	27⅜	24¼	24¾	— 2⅛
17½	9½	11⅜	8⅜	.....	N.P.	Creole Petroleum	.....	.....	30,300	9¾	9⅞	9¼	9¾	+ ¼
82	67	75¾	62	1,500,000	50	Cumberland Pipe Line	‡$1Q	Mar. 15, 29	.....	.....	.....	.....	.....	.....
88	64½	70½	64	5,000,000	100	Eureka Pipe Line	$1Q	Feb. 1, 29	50	64¼	64¼	64¼	64¼	+ ¼
13	4¼	6⅝	5⅞	16,000,000	100	Galena Signal Oil	.....	June 30, 25	.....	.....	.....	.....	.....	.....
86	26	90	84	4,000,000	100	do new pfd	.....	June 30, 26	.....	.....	.....	.....	.....	.....
89¾	35	85	80	2,000,000	100	do old pfd	.....	June 30, 26	.....	.....	.....	.....	.....	.....
114¾	59¼	110	89⅝	73,685,700	25	Humble Oil & Refining	‡30cQ	Apr. 1, 29	44,600	105½	*110	101⅞	105	— 1
290½	176½	318	285	20,000,000	100	Illinois Pipe Line	$10S.A.	Dec. 15, 28	250	315	*318	315	317	+ 1
104	56¾	103⅛	89	(sh) 6,591,458	N.P.	Imperial of Canada	‡25cQ	Mar. 1, 29	14,600	97	97	90⅛	91⅞	— 4⅝
91⅞	74⅝	91	81¼	$5,000,000	$50	Indiana Pipe Line	‡$1Q	Feb. 15, 29	2,300	86	*91	86	91	+ 4
55	35	65¼	50¼	(sh) 7,123,544	N.P.	International Petroleum	25c	Mar. 15, 29	16,300	55	55¾	50⅜	50⅝	— ⅜
32⅜	19⅜	25⅛	22⅛	$6,363,350	12.50	National Transit Co.	‡25cQ	Mar 15, 29	3,100	25	25	23½	23½	— ¼
75	38½	85	72	5,000,000	100	New York Transit	.....	July 15, 26	.....	.....	.....	.....	.....	.....
69	56½	63	59	2,000,000	50	Northern Pipe Line	$2S.A.	Jan. 2, 29	.....	.....	.....	.....	.....	.....
83½	58½	74⅜	64⅛	60,000,000	25	Ohio Oil Co.	50cQ	Mar. 15, 29	6,100	68	70½	67¼	68¼	— 1¼
84	28	44½	30	10,000,000	25	Penn Mex. Fuel	75c	Dec. 16, 28	2,300	35	35	†30	31	+ 1
220	167	50	45	4,000,000	25	Solar Refining	$5S.A.	Dec. 20, 28	1,000	39½	42	39¼	42	+ 3¾
19	12	18½	13	1,000,000	10	Southern Pipe Line	$1	Mar. 1, 29	700	18⅜	18⅜	15½	15½	— 2¾
71⅞	36¾	48⅝	40⅜	20,000,000	25	South Penn Oil	50cQ	Mar. 31, 29	11,300	44¼	*48⅝	43⅜	46⅜	— ⅜
102	70	70	67	1,750,000	50	South West Pa. Pipe Lines	$1	Apr. 1, 29	100	67	67	†67	67	+ 1
95⅞	70⅞	103¼	59½	230,788,513	25	S. O. Indiana	‡62½cQ	Mar. 15, 29	53,600	91⅞	93¼	†59½	60	+ 1¾
27¾	15	21⅞	18	8,000,000	25	S. O. Kansas	.....	June 16, 24	1,500	20¾	21	19¾	19¾	— 0
49	44	45¼	39⅜	25,654,516	10	S. O. Kentucky new	40cQ	Mar. 31, 29	10,100	41¼	42½	40⅛	40⅛	— ⅛
54⅝	39⅞	49⅛	45½	4,649,225	25	S. O. Nebraska	‡62cQ	Mar. 20, 29	1,000	47⅞	48⅜	47½	47½	— 0
134	71	124½	110¼	14,000,000	25	S. O. Ohio	62½cQ	Apr. 1, 29	650	115½	118½	114	115	— 2
125	116	124½	116¼	7,000,000	100	do pfd	$1.75Q	Mar. 1, 29	120	122¼	122¼	122	122	— 0
23½	16	18	15	861,466	25	Swan Finch Co.	30c	Jan. 15, 29	100	15	15	†15	15	— 1½
111	72	133¾	105½	126,154,000	25	Vacuum Oil	$1Q	Mar. 20, 29	18,700	129	*133¾	127	127⅛	— 1⅜

*New High †New Low ‡Also Extras

Independent Oils on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Par Value	Stocks	Transactions Sales	Week Ended March 23 First	High	Low	Last	Change
1½	.53	.72	.51	$ 5	Amer. Cons. Oilfields	11,800	58	59	55	59	+ 3
9½	3⅛	8⅝	5¼	N.P.	Amer. Maracaibo	7,600	5⅜	5⅝	†5¼	5¼	— ¼
4½	2¼	3⅝	1⅞	$10	Argo Oil	1,000	2¾	2¾	2½	2½	+ ⅜
3¾	3⅜	5⅝	3¾	10	Arkansas Nat. Gas	23,600	5¼	5½	5⅛	5¼	0
55	32¾	62	50	N.P.	British American Oil	.....	.....	.....	.....	.....	.....
23⅞	3¾	4⅜	2⅝	25c	Carib Syndicate	2,400	3⅛	3½	3	3⅜	+ ⅛
90⅞	54	121⅞	88⅜	$25	Cities Service	48,100	120⅜	121⅞	120½	121	0
103½	94½	98½	88⅜	100	do pfd	1,800	97⅛	97½	97	97⅜	0
9⅜	8⅞	9¼	8⅞	10	do pref. B	700	9	9	9	9	0
97	88½	....	....	100	do pref. BB	100	92½	92½	92½	92½	+ ½
35¼	27⅜	....	....	10	do Bankers	.....	.....	.....	.....	.....	.....
2¼	1	....	....	1	Colombia Syndicate	8,300	1¼	1¼	1⅛	1⅛	— ⅛
17⅜	9¾	15	8¼	....	Colon Oil	3,900	10	10½	9⅞	9½	— ½
8⅞	6¼	11⅜	6⅞	10	Consolidated Royal	6,700	8⅞	10⅝	8⅞	10¼	+ 1⅜
3¼	.76	1¾	1⅜	N.P.	Crown Central	1,700	1½	1¾	1½	1½	— ⅛
15	6¾	11¾	8	N.P.	Crystal Oil	.....	.....	.....	.....	.....	.....
50	48	51⅛	51⅛	$100	do pfd	.....	.....	.....	.....	.....	.....
33½	8⅛	26	20	N.P.	Darby Petroleum	500	20½	20½	20	20	— ½
13½	7⅞	....	....	....	do trust ctfs.	.....	.....	.....	.....	.....	.....
2⅞	1	5	2	N.P.	Derby Oil & Refining	200	3⅝	3⅝	3½	3⅝	— ⅜
21⅜	7½	....	....	N.P.	do pfd	100	24⅞	24⅞	24⅞	24⅞	0
2	1	....	....	N.P.	Gibson Oil	.....	.....	.....	.....	.....	.....
.53	.15	....	....	N.P.	Gilliland ctfs.	.....	.....	.....	.....	.....	.....
165	101⅛	167	142⅛	$25	Gulf Oil Corp.	34,400	155	163⅜	153	157	+ 2½
7½	5⅜	7½	4½	5	Homaokla Oil	8,900	5⅛	5½	5	5⅛	0
3⅜	1	2½	1¾	10	Intercontinental Pet.	15,400	1¾	2	1¾	2	+ ¼
3	¼	3⅜	1¾	N.P.	Kirby Petroleum	1,000	2	2¼	2	2¼	— ⅛
9¾	5⅛	6½	5	N.P.	Leonard Oil & Dev.	2,900	6	*6⅜	5½	5⅞	— ⅛
43⅜	20	33½	25⅛	N.P.	Lion Oil & Refg.	2,400	26½	27⅞	25⅜	26½	+ 1⅜
69⅜	48⅛	74⅞	67	$25	Lone Star Gas	700	72	72	70½	70¾	— ⅞
1⅞	.50	1¼	.60	1	Magdalena Syndicate	11,800	69	75	65	65	— 5
48½	32	38½	31	N.P.	Margay Oil	.....	.....	.....	.....	.....	.....
40½	40½	....	....	$10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
8	2¾	6⅜	3⅜	N.P.	Mexico-Ohio Oil	400	6	6	6	6	— ⅜
.74	.20	....	....	$10	Mexico Oil	.....	.....	.....	.....	.....	.....
1¾	.76	1½	1⅛	1	Mountain & Gulf	4,200	1¼	1¾	1¼	1¼	— ⅛
28⅞	19½	22⅞	19	10	Mountain Producers	4,900	19¾	20½	19¾	19¾	0
5⅜	4¼	5	4	5	New Bradford	900	4⅛	4¼	4	4¼	0
5½	3	3¼	3⅛	10	New England Fuel	.....	.....	.....	.....	.....	.....
11⅞	7⅛	9⅜	7½	1	New Mex. & Ariz.	1,100	8⅝	8⅝	8⅛	8⅛	— ⅜
15½	11½	....	....	25	New York Oil	.....	.....	.....	.....	.....	.....
40	39⅛	....	....	....	North Amer. Oil Cons.	.....	.....	.....	.....	.....	.....
13¼	8½	11½	8¾	N.P.	North Cent. Texas	200	10	10	10	10	+ ¼
....	....	19¼	14¾	N.P.	Oil Stock, Ltd. A	4,000	16	16⅝	15¾	16⅜	+ ⅜
....	....	17⅞	15	N.P.	do B	.....	.....	.....	.....	.....	.....
26¼	20	23¼	18½	N.P.	Pacific Western Oil	7,100	22¾	22¾	19¾	20	+ 2
6	2¼	3½	2	N.P.	Pandem	8,000	3⅛	3¼	2½	2½	— ⅜
15⅝	8½	10¼	8	N.P.	Pantapec	21,000	8¼	9⅜	8	9⅛	+ ¾
20	10⅝	....	....	$25	Paragon Refg. B. ctfs.	.....	.....	.....	.....	.....	.....
.09	.04	....	....	N.P.	Peer Oil Corp.	.....	.....	.....	.....	.....	.....
7¾	4⅞	7⅜	4⅜	$10	Pennok Oil	1,700	4⅞	5⅛	4⅞	5⅛	+ ¼
....	....	34½	32⅜	N.P.	Petroleum Corp.	20,000	33½	33½	32⅛	32⅛	— ⅞
5⅜	3⅛	....	....	$5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
31⅜	26½	30	23	N.P.	Plymouth Oil	5,800	24	27½	23⅛	27	+ 1
18	8	16	12	25	Red Bank Oil	100	12½	12½	12½	12½	— 2⅜
13	4⅛	8½	5	N.P.	Reiter-Foster	4,500	6½	6¾	6¼	6¾	+ 2
31½	23¼	25	24½	$25	Richfield pfd	400	24½	24½	24¼	24¼	0
..	....	26	25	....	Root Refining pfd	3,000	25	25½	25	25	0
12	4⅝	11	7⅛	N.P.	Ryan Consolidated	3,700	8½	8½	8¼	8¼	0
7¼	5½	5⅞	4	$10	Salt Creek Cons.	1,800	4⅛	4⅜	†4	4¼	0
35	23¼	25⅞	22	10	Salt Creek Prod.	3,900	23⅞	24¼	23⅝	24	+ ⅜
3½	1	2	1⅜	5	Savoy Oil	600	1½	*2	1½	2	0
40	27	33⅛	33	25	Shreveport El Dorado	.....	.....	.....	.....	.....	.....
....	....	23	16⅝	N.P.	Texon Oil & Land	6,200	20⅞	21⅞	20	20⅞	— ⅝
22⅞	13	....	....	$10	Tidal Osage	400	12⅞	12⅞	12⅛	12⅛	+ ½
21¼	13⅛	14⅞	10⅜	10	do non-voting	600	11⅞	11⅞	11½	11½	— ⅜
93¾	75	89	80	100	Transcontinental pfd.	100	81	81	81	81	+ 1
74⅛	18	67	66	10	Venezuela-Mexico	.....	.....	.....	.....	.....	.....
9⅛	4¾	6½	4¼	5	Venezuelan Petrol.	4,600	5	5	4⅞	5	+ ⅛
8¼	4⅞	9⅜	5¾	1	Woodley Petroleum	1,300	8½	8½	7¾	7¾	— ¾
⅜	2⅛	5⅜	2¾	25	Y Oil & Gas	1,300	3	3⅛	2⅞	3⅛	+ ¼

*New High †New Low

New York Curb Bonds

Week Ending March 22

	High	Low	Last	Change
Beacon Oil 6s '36	109⅝	109⅛	109⅛	— ½
Cities Service 5s '66	90½	90	90½	+ ¼
Cities Serv. G 5½s '42	91	90	90¾	+ ¼
Cities Serv. 6s '43	95½	95	95½	+ ⅛
Cont. Oil 5¼s '37	96⅛	95½	95½	— ½
Empire O & R 5½s '42	90	89⅛	89⅛	— ⅝
Galena Oil 7s '30	100½	100½	100½	— ½
Gulf Oil 5s '37	100½	99¼	99¾	+ ¼
Gulf Oil 5s '47	100¾	100	100⅜	— ¼
Indep. Oil 6s '39	109	107	107⅞	0
Richfield Oil 5½s '31	100¼	99⅞	100	+ ⅜
Sun Oil 5½s '39	100	100	100	—1
Valvoline Oil 7s '37	103	103	103	0

New York Bonds

Week Ending March 22

	High	Low	Last	Change
Assoc. Oil gold 6s	102¾	102¼	102¼	— ½
Atlantic Refg. deb. 5s	101⅞	100	100	—2
Cal. Pet. 5s	98½	97¼	97½	— ½
Cal. Pet. 5½s	100¾	100	100¼	0
General Asphalt 6s	105½	105	105	+ ¼
General Pet. 5s	100	100	100	—1
Humble Oil & Refg. 5s	100¾	99⅞	100	0
Humble Oil & Refg. 5½s	101¼	100½	101	0
Pan Amer. P & T 7s	104¾	104¾	104¾	0
Pan Amer. P & T 6s	103¾	102¾	103½	— ¼
Pan Amer. P & T 6s	93½	92	93½	+ ¾
Phillips Pet. 5½s	90½	90	90½	+ ½
Prod. & Refg. 8s	111	111	111	0
Pure Oil 5½s	98½	97½	98½	+1½
Shell Union Oil 5s	95¾	95¼	95¼	— ⅜
Sinclair Con. Oil 7s	102½	102	102½	— ½
Sinclair Con. Oil 6½s	100¼	99½	99½	— ⅛
Sinclair Con. Oil 6s D	99¼	99	99¼	0
Sinc. Con. Oil Crude 5½s	96	95½	95½	0
Sinclair Pipeline 5s	94	93½	93¾	+ ¼
Skelly Oil 5½s	93½	92¾	93½	+ ⅜
S. O. N. Y. 4½s	96½	95¾	95¾	— ¼
S. O. N. J. 5½s	102½	101⅝	102	0
Union Oil of Calif. 5s C	98¼	98	98¼	0
Union Oil of Calif. 1st 5s A	101½	101½	101½	0
White Eagle Oil 5½s	102¾	101½	101⅝	— ¾

Oil Dividends

	Amount	Payable	Stock of Record
Darby Petroleum q	25c	Apr. 15	Apr. 1
Indiana Pipe Line q	$1	May 15	Apr. 26
do extra	$1	May 15	Apr. 26
Mountain & Gulf q	2c	Apr. 15	Mar. 30
New Bradford Oil q	12½c	Apr. 15	Mar. 30
Cities Service m	10c	May 1	Apr. 15
do stock m	½%	May 1	Apr. 15
do pfd. m	50c	May 1	Apr. 15
do pref. B m	5c	May 1	Apr. 15
do pref. BB m	50c	May 1	Apr. 15

Warner-Quinlan Buys N. Y. Distributor

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a banking house, from the National American Co., a management and holding concern.

Through the stock purchase, Warner-Quinlan also gains control of all the Municipal subsidiaries including Municipal Gasoline Stations, Inc., operating approximately 60 service stations in greater New York City; Utility Oil Corp., the wholesale distributing unit; Jaidenette Realty Corp.; Commerce Oil Corp.; Petroleum Terminal Corp., and Crest Trucking Corp.

Aside from its extensive distribution in New York City, Municipal also owned a deep water terminal with storage capacity of approximately 10,000,000 gallons at Bayonne, and smaller bulk plants at Long Island City and Yonkers.

Competition between the two companies has been particularly keen, the latest battle having taken place as recently as early January. Municipal at that time reduced its retail prices 2 to 3 cents a gallon. Warner-Quinlan then discontinued the sale of its regular Motor grade of gasoline and posted a price for its premium grade of 14 cents, 1 cent under the price Municipal was posting for its regular Motor grade. Both companies have always maintained prices from 1 to 2 cents under those posted by the Standard Oil Co. of New York and large Independents. With the elimination of competition, it is felt in some quarters that this latter policy will eventually be done away with.

Columbian Statement On Tank Case

CLEVELAND, March 25.—The public relations department of the Columbian Steel Tank Co., Kansas City, has submitted the following statement to NATIONAL PETROLEUM NEWS regarding the truck tank controversy in New York City:

"The recent decision of Supreme Court Justice Levy in New York upholding the New York Fire commission in its policy of giving Columbian truck tanks exclusive right to operate on the streets of New York City is the final answer as to the justice of this controversy which has attracted wide attention the last few months in oil circles.

"The court action was upon an application made by a competitive manufacturing concern to restrain the New York Fire commission from continuing to approve only the Columbian truck tank which has the exclusive 'protruding head' feature. The argument was based mainly on the plaintiff's contention that the ruling gave a monopoly to the Columbian Steel Tank company of Kansas City, which manufactures the only protruding head type of truck tank.

"Attorneys for the city fire commission argued that safety was the principal consideration in approving the protruding head tank, because, although built to hold 1500 gallons of oil, the tank is divided into compartments by these partitions so only one 250-gallon container would leak in case of a rupture of any kind in the side of the tank.

"Also, fire officials pointed out that rigid tests had been made with the Columbian truck tank, at one time a fire being built under it when filled with gasoline and at another time a tank was dropped four feet on a cobblestone pavement, in both cases without any leak in the tank or loss of contents.

"Officials of other large cities watched the case with great care as the danger of transporting large quantities of inflammable liquids in congested city areas is recognized and restrictions on truck tanks are expected in other cities as a result of the New York decision.

"The case hinged to a certain extent upon a provision in the City Charter prohibiting the ordering by the city of any patented articles on any building or in any public street or place unless there be a reasonable opportunity for competition.

"Whether the Columbian truck tank with its 'Protruding Heads' is patented or not apparently might have been easily established by patent attorneys but the opinion of Supreme Court Justice Levy said that the existence of such a patent had not been proved.

"The court also vacated a temporary injunction previously granted holding up the sale of any truck tanks in New York City and held that the plaintiff had not made out a case for an injunction in advance of the trial of the case."

CHICAGO, March 23.—Mr. Ed S. Dwyer, has accepted a position with the Atlas Petroleum Co., Chicago, exclusive sales representatives of the Taxman Refining Co. of Wichita Falls, Texas. Mr. Dwyer was formerly district sales manager of the Transcontinental Oil Co.'s Chicago office.

TULSA, March 22.—L. B. Simmons, president of Rock Island Refining Co., Duncan, Okla., was a visitor in Tulsa March 14, stopping off on his return from the W.P.R.A. meeting in St. Louis March 12.

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